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J. J. FRAWLEY

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The Province of Alberta

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IN THE MATTER OF THE PUBLIC INQUIRIES ACT

—and—

IN THE MATTER OF a Commission, dated the
12th day of October, A.D. 1938, to inquire
into matters connected with Petroleum
and Petroleum Products

Commissioners:

The Honourable MR. JUSTICE McGILLIVRAY
(*Chairman*)

—and—

L. R. LIPSETT, ESQ.

Session:

CALGARY, Alberta EXHIBITS 1—

VOLUME 1.

Fink's report ⑱
Davies' report ⑲

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EXHIBITS

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Exhibit 1. 107

Memorandum to
Commission of Inquiry

18th October 1938

I assume that the purpose of the Government in instituting this inquiry is to determine the cost of producing petroleum products and distributing them in the province of Alberta and whether the cost to the consuming public of these products is too low or too high, having proper regard to all the controllable and uncontrollable factors that make up these costs.

I further assume that another purpose is to encourage employment by the development of Alberta's oil production, Alberta refineries and products marketed by Alberta concerns (on a basis of fair prices to the consuming public, fair wages to the employees of the different concerns engaged in the industry and reasonable returns on the actual capital invested).

I also assume that another purpose is to inquire into the conditions existing in the industry and determine --

1. If the prices fixed by Imperial Oil Limited for the different products are reasonable, too low, or excessive.

2. What services apart from the products sold are included in the sale price, including credit terms; discounts; loan of equipment -- drums, containers, dispensing pumps and tanks; credit cards; subsidies in the form of rent advances on mortgages; etc.'

3. What effect, if any, these various services have on costs.

4. If the conditions existing in the different phases of the oil industry in Alberta as a result of present

Exhibit 1. - Continued

policies of Imperial Oil Limited permit of free competition or do they restrict the operations of independent native companies, and create what amounts to, in practice, a monopoly.

5. Are the prices fixed by Imperial Oil Limited on the basis of the industry taking advantage of modern, improved, and efficient means of producing, refining, transporting and marketing.

Now it is to be assumed that the government in this inquiry is endeavoring to protect the public interest and at the same time encourage and protect private industry in the Province of Alberta.

It is almost generally conceded that any citizen has the right, if he so chooses, to engage in the oil business in any or all of its phases as a means of earning a living, and that it is a legitimate legal enterprise. It follows then that the government in all fairness should consider and respect the property and rights of individuals engaged in the industry.

It is my intention at the proper time to present evidence for your consideration and to deal with particular problems affecting the individual engaged in the production, refining, transport and marketing of petroleum products.

I want to dwell on the question of distributing facilities and the right of the individual to engage in this activity without having to face government restrictions. We have heard it repeatedly mentioned that there exists too many outlets both wholesale and retail. You will have to judge as to that, but I will say that the question is not capable of being answered in the abstract. As long as we accept the principle of

Exhibit 1. - Continued 107

private enterprise developing crude oil production and refining, then it follows that the right to market the products of their industry is equal to the right of all others in the business to do so, and should be conceded in this inquiry.

Considerable legislation has been passed and enforced with a view of restricting these rights, and it is my intention to give evidence to show that such a policy on the part of the government is detrimental to the interests of the people of the province and to the citizens engaged in the Alberta oil industry, as we must remember that the distributing end of the industry is, with changing conditions, in a constant flux, and is at present undergoing a considerable change that is resulting in more efficient marketing and lower costs to the consumer.

In this inquiry the commission should weigh the evidence presented as it applies to individually owned businesses in the light of practical realities facing private enterprise, acting under the compulsion of constant change and competition from major companies and the effects of present government regulations and policies, and base its conclusions accordingly.

Respectfully submitted

Leon L. Plotkins,
for Lion Oils Limited
Lion Refining Company
Lion Oil Producing Company
Lion Transport

Exhibit #2.

TURNER VALLEY PRODUCTION.

YEAR	PRODUCING WELLS		MADISON LIMESTONE									SHALLOW SAND PRODUCTION BBL.	TOTAL TURNER VALLEY CRUDE AND NAPHTHA - BBL.
	GAS	OIL	BBL. CRUDE	AVG. PER WELL/DAY	BBL. NAPHTHA	AVG. PER WELL/DAY	TOTAL BBL. CRUDE AND NAPHTHA	M.C.F. GAS	F/B MCF/BBL.	BBL. GASOLINE (A)	AVG. G.P.M.		
1914-21	0									9,294		56,599	56,599
1922	0									8,060		6,559	6,599
1923	0									13,205		1,943	1,943
1924	0									8,951		844	844
1925	1				156,766	430	156,766	2,100,000	13.4	7,283	.121	2,926	159,692
1926	2				203,725	279	203,725	8,760,000	43.0	3,854	.015	2,609	206,334
1927	5				284,416	156	284,416	8,810,000	31.0			38,808	323,224
1928	15				410,623	75	410,623	13,870,000	33.7			70,734	481.357
1929	29				908,741	86	908,741	21,320,000	23.5			72,480	981,221
1930	67	2	62,539	86	1,251,500	51	1,314,039	61,450,000	46.8			50,545	1,364,584
1931	81	2	85,258	117	1,260,431	43	1,345,689	114,080,000	84.8			26,936	1,372.625
1932	83	2	60,494	83	793,622	26	854,116	169,280,000	198.2			21,694	875,810
1933	85	3	55,213	50	711,891	23	767,104	111,260,000	145.0	185,781	.058	23,822	790,926
1934	88	3	78,624	72	717,818	22	796,442	95,500,000	119.9	414,324	.152	21,896	818,338
1935	75	3	124,893	114	586,747	21	711,640	91,800,000	129.0	496,681	.189	18,691	730,331
1936	84	6	319,845	146	351,914	11	671,759	88,590,000	131.9	602,360	.238	13,119	684,878
1937	81	29	1,916,110	181	183,353	6	2,099,463	88,020,000	41.9(B)	657,169	.261	10,589	2,110.052
1938	72	62						85,030,000					
TOTAL:			2,702,976		7,821,547		10,524,523	959,870,000	91.2	2,408,962	.088	440,794	10,965,317

(A) From 1922 to 1927, natural gasoline was derived from horizons above the Lime; since 1933 from the Lime.

Note - Division between crude and Naphtha only approximate

(B) Proration started.

SUMMARY:

Crude from Limestone	89%
Naphtha from Limestone	10%
Shallow Crude	1%

EXHIBIT 3. Page 130

Map of the Northern part of the Turner Valley oilfields area upon which has been plotted the various oil and gas producing wells, the tracing of the fault on the East side at the point at which it meets the limestone and cuts off the producing part of the field, and upon this map is also traced contour lines at intervals of 500 feet from the point minus 1500 feet below sea-level to a point 5500 feet below sea-level.

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EXHIBIT 4. Page 130

Map of the Central part of the Turner Valley oilfields area upon which has been plotted similar information to that shown in Exhibit No. 3.

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EXHIBIT 5. Page 130

Map of the Southern part of the Turner Valley oilfields area upon which has been plotted similar information to that shown on Exhibits 3 and 4.

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EXHIBIT 6. Page 163

Map showing a composite cross-section taken through the structure, showing the geological structure in Turner Valley.

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EXHIBIT 7. Page 165

Structure contour map, showing the elevations in the Turner Valley structure.

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EXHIBIT 8. Page 167

Samples of porous rock found in the Turner Valley oilfields area.

- - - - - - - - - -

EXHIBIT 9. Page 169

Chart showing porosity, permeability, and fracturing found in the Turner Valley oilfields area.

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EXHIBIT 10. Page 172

Log of the limestone in West Turner No. 1 Well.

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EXHIBIT 11. Page 172

Log of the limestone in Consolidated No. 1 Well.

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EXHIBIT 12. Page 172

Log of the limestone in Richwell No. 1 Well.

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EXHIBIT 13. Page 182

Bottom-hole pressure contour map of the South end of Turner Valley, as probably existed July 1936.

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EXHIBIT 14. Page 182

Bottom-hole pressure contour map of the South end of Turner Valley dated November 1938.

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EXHIBIT 15. Page 185

Twelve graph charts showing production of representation oil wells in Turner Valley.

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EXHIBIT 16. Page 185

Production chart of Sterling Pacific No. 3.

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EXHIBIT 17. Page 185

Production chart of Turner Valley Royalties No. 1

- - - - - - - - - -

EXHIBIT 18. Page 197

Typewritten report presented by Dr.Link as follows:

EXHIBIT 18.

GEOLICAL DATA
PERTINENT TO THE ESTIMATION
OF RECOVERABLE OIL RESERVES FOR TURNER VALLEY

Introduction

From a geological standpoint there are several factors which are needed to arrive at an estimate of crude oil reserve in Turner Valley. They are as follows:

1. The structure of the field.
2. Area of the field divided into gas-cap, crude oil area and the edge-water.
3. Thickness and nature of the producing formation. The latter is sub-divided into:
   - (a) Porosity
   - (b) Permeability
   - (c) Fracturing
4. The pressure at which the oil is found in the formation and its rate of decline.
5. The effect, if any, of the edge-water on the pressure.
6. The rate of crude oil and gas production.

The object of this discussion is to point out what is known about the above enumerated factors, with the hopes of arriving at a basis with respect to the oil reserves of the Turner Valley structure.

Before entering into this discussion it is important to appreciate the differences between the total possible amount of oil in the formations and the total possible recoverable oil. Obviously oil which cannot be drawn from the formations need not be considerd, regardless of how large the figures are. This discussion will, therefore, be confined to the recoverable reserves.

Structure of the Turner Valley Field

Stated as briefly as possible, the Turner Valley Oil Field is an anticlinal structure approximately seventeen miles long and two miles wide, bounded on the east side by a large thrust fault (major sole fault). Along this fault plane the anticlinal structure was moved eastwardly an unknown distance and the structure is therefore disconnected from the rocks lying to the east. To the west the possible crude area is bounded by what is termed "edge-water". Map (Figure 1) is a structure-contour map, based upon the most recent information This map shows the shape and extent of the sub-surface structure, based upon elevation taken at the top of the Paleozoic limestone - the formation containing the producing horizons of the field.

On this map are shown the eastern limit of the structure as defined by the "major sole fault", the boundary between gas producing (gas cap) area and the "possible" crude oil area, and also the possible western limit of the field as defined by the "edge-water". Figure 2 is an ideal cross-section through this structure, showning the relationship between the features mentioned above, namely; the major sole fault, the gas cap and crude areas, and the edge-water.

Figure 2

(diagram here)

Ideal cross-section, showing relationship between the gas (in the gas-cap area), the Oil (crude oil area) and the Edge-water.

Note that the Gas-Oil boundary line lies-1700 feet below sea level, the Oil-Water boundary line is placed at 4500 feet below sea level.

Due to the fault at the left, there is no hydrostati head of water to drive the oil up-dip. The water is essentially stagnant.

The Producing Horizons

As we all know, the oil and gas found in Turner Valley does not exist as a pool, but exists within the openings or pore spaces of a solid rock - the producing hori on. There are two such producing horizons within the Paleozoic limestone known as the "upper" and "lower" zones. The thickness of these two zones varies considerably, but the average may be regarded as approximately 50 feet. If the exact percentage of open pore spaces, and the thickness of these formations throughout the field were known, it would be an easy matter to figure out the total amount of oil existing in these formations. However, not enough data are available to make this calculation, and besides, it would be of only academic interest and of no value in determining the actual amount which can be produced or recovered. .

Porosity and Permeability

Movement of oil or gas through the Paleozoic limestone of Turner Valley is dependent upon the following factors:

(a) Porosity (pore spaces or open spaces).
(b) Permeability (continuity of pore spaces, which allows the oil, gas, or water, to travel through the formation.)
(c) Fracturing (cracks and fissures.)

Figure 3

(diagram here)

It is common knowledge that a very porous limestone formation may have a limited permeability. In other words, the pore spaces may not be continuous or connect with one another over large areas. This factor can best be determined be behaviour of wells drilled close together and a study of the cores and rock cuttings from the drilled holes. If permeabilitywere such as is commonly found in oil fields producing from a continuous sand body, interference of adjoining wells, and comparable production and oressures of simultaneously completed wells should be the result. This, however, does not appear to be the case, as can be demonstrated by listing divergent results obtained at many wells drilled in c ose proximity to one another, in both the gas-cap and a so the oil area of Turner Valley. An example from the gas-cap and another from the crude oil area is submitted herewith:-

(a) Sterling Pacific No. 1 and Mercury No. 3 are located 400 feet from one another. Both encountered the top of thelimestone at approximately the same level. Sterling Pacific No. 1. encountered naphtha production of about 45 bbls. per day for the first six months, while Mercury 3 averaged 190 bbl. (These are wells on the gas-cap).

(b) Sterling Pacific No. 4 and Westflank No. 1 are located 600 feet from one another . Both encountered the top of the limestone at essentially the same level. Sterling Pacific No. 4 averaged about 1000 bbls. per day the first month, while Westflank No.1 averaged 188 bbls. per day. (These are crude oil wills).

Fracturing

The phenomenon of fracturing has played an important part in the gas cap area, as was demonstrated by the bringing in of many naptha wells during the 1926-1931 period

when large fragments of loose limestone were hurled out of the wells at the time of their "blowing in". In fact, it is highly probable that near the crest of the structure, where the greatest flexing or bending of the limestone took place, the upper and lower porous zones are connected with one another so that intercommunication between the two exists However, this phenomenon of fracturing may also be very localized, as is attested by the divergent results obtained in some of the very closely spaced gas wells, where large producers lay very close to small wells completed almost simultaneously, as in the case of Sterling Pacific No. 1 and Mercury No. 3. On the west flank, in the oil zone, fracturing is also present, but to a much more limited extent because of the relatively flat dip of the limestone where a lesser amount of flexing took place.

Examination of well cuttings and cores show that the relative porosity of the variously drilled wells have a great variation. (comparative porosity determinations for three representative wells are submitted, attached to this report (See Figure 6-8). These same data are available for all well drilled in the crude oil area, and may be examined if necessary,) It is therefore again concluded that the permeability is limited to such an extent that large scale and rapid migration of oil within the oil area and up the dip into the gas cap area is not to be expected. Likewise, since the fracturing is also a localized condition large scale migration via fractures from the crude oil area into the gas cap is also highly localized. Secondary Calcite acidizing effects.

The Movement of Oil, Gas and West Flank Water

For some time there has been the contention that a hydrostatic head (water-drive), exerted on the west flank of the Turner Valley Structure would cause an up-dip migration of the crude oil into the gas cap area. It was also expected that this hydrostatic head would tend to keep the pressures in the crude oil area from dropping excessively and irregularly. Results obtained at the Okalta No. 6 location have demonstrated the existence of "flank water," but the slow rise of the water into the hole indicates that the water is exerting very little, if any , pressure on the up-dip oil body. This conclusion is based upon the fact that the water entering the well did not rise to a level high enough to indicate an effective water drive. The west flank water may therefore be regarded as "dead water", acting merely as a barrier to down-dip migration.

Because of its mobility, migration of the gas within the gas cap area must have taken place, and equalization of pressures within that area may take place over a reasonable time if all well were closed in, but data obtained to date indicate that almost complete equalization would require at least ten years, if not more.

There is no doubt that the lighter and more mobile gas from the crude oil area is, and has for some time, been passing up the dip into the gas cap area, leaving the oil which is less mobile and heavier, behind. Since results obtained at the Okalta No. 6 location indicate no water drive, is apparent that migration of the oil up the dip intothe gas cap is not expected to take place regardless of permeability, and with a relatively low and irregular permeability of the producing formation,the up--dip migration is again reduced to

a minimum - at least slowed up to such an extent that the project of re-pressuring the gas cap with the hopes of forestalling the pressure decline in the oil area is a highly uncertain affair which will probably prove to be uneconomical. Re-pressuring of the gas cap area would then serve merely the purpose of establishing a greater natural gas reserve and the incidental benefit of processing the gas through absorption plants before pumping it back into the formation. Therefore, if the sale of the gas compressed from the crude oil area back into the gas cap area and the money made from this gas via the absorption plants would show a profit over the cost of installing and operating compressors and gathering lines, the project can be recommended. With respect to this project, it is again in place to call attention to the lack of great permeability, and intake wells would have to be changed from time to time because one well is capable of taking back no more than it has yielded unless its radius of drainage overlaps that of other wells.

Up-Dip Versus Down-Dip Migration of the West Flank Crude Oil-Gas Cap Boundary Line

Under the assumption of effective permeability, and a hydrostatic head or water drive from the west flank, it was naturally assumed that a migration of the west flank oil body up the dip into the gas cap area would take place. The rate at which such movement would take place would naturally depend upon the magnitude of the hydrostatic head and the amount of effective permeability. Such an up-dip movement has been the history of all oil fields where the two above mentioned conditions were obtained. Before the completion of

Turner Valley Royalties No. 1, whichis erroneously regarded as the oil discovery well, crude oil was being produced from Model No. 1, Advance No. 5A and Miracle No. 2. At these locations the top of the limestone was encountered at a depth of 1707', 1779', and 1871' respectively below sea level It is therefore safe to assume that the crude oil-gas cap boundary line lay approximately 1700'below sea level. (See Figures 1 and 2). After completion of Century Royalties No. 1 (1600'below sea level) this well produced naphtha, and later on changed over to crude oil, thus indicating a limited up-dip migration of the crude oil boundary. (See Figures 18 and 20 at end of report), Several other wells such as British Dominion No. 4 and others near the boundary line of the crude oil and gas, changed temporarily over to crude oil production. In every case these border wells produced a high gravity of crude and this change took place beforemany of the wells being drilled on the west flank were brought into production. After a large number of west flank crude oil wells were completed, and had produced for some time, and after the pressure drop in these changing wells had reached a certain point, the gas-oil ratio continued to increase to such an extent that at the present time many of these border wells are again classified as gas wells by the Conservation Board.

The results obtained at Okalta No. 6 are almost conclusive enough to arrive at the conclusion that a water-drive is not present in Turner Valley. (See Figure 2). The gas-oil ratios (the amount of oil produced per 1000 cubic feet of gas,) of many of the wells, drilled near the original crude oil-gas cap boundary line, (1700feet below sea-level), is now changing so rapidly that soon many of these wells will be

classified by the Conservation Board as Gas wells. It is quite obvious that with the withdrawal of gas from the crude oil zone to the west of this boundary line, the gas-oil ratio will become higher, and when it has reached the figure set by the Conservation Board, they will eventually all be classified as gas wells. Thus, the gas-cap crude oil boundary line will migrate down the dip, rather than up the dip as was formerly believed to be the case. In considering such wells as Model No. 1, Advance No 5A and Miracle No.2, where no adjacent or off-set crude oil wells have been drilled to the West,and where no gas is being pulled out of the crude oil zone to the west of these wells, it is obvious that such wells will continue as crude oil wells over a much longer period than those where the equilibrium is now being disturbed by wells drilled in the crude oil zone. However, due to the lack of effective permeability, these wells will also eventually develop a high gas-oil ratio so that they will also have to be regarded as gas wells.

Reference has already been made to the structure-contour map, submitted as Figure 1. A structure-contour map consists of lines connecting points of equal elevations. These lines are called "contours" or "contour lines". The east side of this structure contour map is delineated by the sub-surface trace of the major sole fault. The contour interval (i.e the difference in elevation between contour lines), on this map is 500 feet, and the contour which lies 1700' below sea level, with respect to the top of the limestone, is regarded as the western limit of the "gas-cap" area, as already pointed out in the early chapters of this discussion. The size of the gas-cap area measures 7,441 acres. The eastern limit of the crude oil area is bounded by the western limit of the

gas-cap area, along the 1700' contour. To date no definite data are available with respect to the actual western limit of the crude oil area. At Okalta No. 6 the top of the limestone lies 5707' below sea level, and water was discovered in that hole. At the present writing the Anglo-Canadian No.1 location is structurally the lowest producing oil well at 3656' below sea level¾ The crude oil-water boundary must therefore lie somewhere between 3700' and 5700' below sea level with respect to the top of the limestone. For lack of a better figure to arrive at for the crude oil-water boundary line, the structure contour line lying approximately half way between these two locations must, for the present, be assumed to be the western limit of the possible crude oil area. Due to the fact that the exact position of the contours below the 4000 foot level are conjectural at the present time, the 4500 foot contour below sea level with respect to the limestone is regarded as the possible western edge of the crude oil zone or the eastern edge of the water. On the basis of this assumption, the possible crude oil area of Turner Valley is measured at 17,187 acres. (the area lying between the 1700' and 4500' contours). This area is indicated in red and red-striped lines on the accompanying map. (If the 4000 foot contour proves to be the water edge, 2,505 acres must be subtracted from the 17,187 acres.) Of this 17,187 acres, 3623 acres are what we know today to be the definitely proven oil area, and is indicated in full red on the map. Any acreage outside this area is merely potential acreage and cannot be taken into consideration for estimating known reserves at this time.

Production ststistics are available for this proven oil

area, and the results obtained are the only basis upon which the recoverable reserve can be estimated. As a first approximation for this estimate, the following data are submitted.

Bottom-Hole Pressures (See Maps, Figures 4&5)

Although no bottom hole pressures were taken in the crude oil wells during the early stages of development, this valuable information is being obtained now, and in some cases enough data are available to arrive at a figure with respect to the amount of oil and natural gas obtained for each pound drop of the bottom hole pressure. This method of calculation of recoverable reserves seems to be the only one which can be applied at the present time. Two pressure contour maps for the south end of the field are submitted herewith. The first one (Map Figure 4) indicates what, in the writer's opinion, was the condition of bottom hole pressures during 1936 when the first large crude oil well, Turner Valley Royalties No.1, was completed. At that time only "closed-in" pressures had been taken for the wells on the gas cap. These figures were increased slightly, to correct them up to bottom hole pressures and the pressure contours were drawn accordingly. On that basis Turner Valley Royalties No. 1 came in with a bottom hole pressure of slightly more than 1500 pounds. (Century Royalties No. 1 had, at that time, a closed-in pressure of 935 pounds, and since this well lies slightly more than a quarter mile northeast of Turner Valley Royalties No.1, the above assumptionseems reasonable. The hightest closed-in pressure on the gas cap at that time was 1420 pounds at Union Drilling No.1).

On Map Figure 5 are shown the pressure contour lines as

of November 1938. A comparison of this map with the 1936 data (Map Figure 4) shows the rapid decline in pressures which has taken place in that area over a period of two years. Because as already pointed out, the amount of recoverable oil is dependent upon the gas pressure energy available, unaided by a hydrostatic head, these data are of vital importance.

Production Graphs (See Production Charts, Figures 9-20)

In addition to the data on "Bottom-hole Pressures" there are submitted inthis report a series of Production Graphs or charts which show in a conclusive manner the rapid decline in production of a group representative of crude oil wells, border wells, and a gas cap naphtha well. The regular decline of many of these wells was halted by acidizing them from time to time, and effects of pro-ration, or restriction of flow,is also noticeable on these charts. It is interesting, however, to note that, regardless of acid treatments and proration, the wells all show a very definite decline curve for the south crude oil area of Turner Valley. Where data are available the pressure decline curve is also incorporated in the graphs, as is also the gas produced. The more rapid decline in crude oil production, compared with the lesser rate of decline for the gas production is quite apparent and indicates how the gas/oil ratio becomes alarmingly serious after a given time.

By projecting these graphs it is possible to estimate the ultimate recovery of oil from a well. The graphs all show quite clearly that in closely drilled areas, like the south end of Turner Valley, at least two thirds of a well's potential crude oil is recovered during the first two years of its life. As an example, Turner Valley Royalties No. 1

produced during the first two years of its life roughly 465,000 barrels of oil. (See Figure 9) If it produces another third of that, the total will be approximately 620,000 barrels. Assuming that this well drains only 40 acres, the recovery per acre will be slightly above 15,000 barrels per acre. Due to the fact that this well was producing for a long period without interference from other wells, this recovery figure is an exceptionally good one, and must be regarded as one of the highest. Compared with this recovery is the record of B. & B. Royalties No. 1, which "came in" a larger well than Turner Valley Royalties, and has produced for 20 months (4 months less than two years) some 290,000 barrels of oil. (See Figure 10) From the production graph it is clear that at the end of the two years the total production will not be more than 300,000 barrels, and that the well will probably never produce more than 350,000 barrels of oil. On the 40 acres basis, this will ranks as 8,700 barrels per acre top figure. During the first month of its life this well produced more than Turner Valley Royalties No. 1 during its first month. The wells just coted came in with large production, and must be regarded as at or near the top of ultimate yield. There are, however, others which will yield a great deal less than thetwo just cited. Unfortunately, some of themore recently completed poor wells have not produced over a long enough period to project their decline curve, but two fair examples are submitted in graphic form, namely Sterling No.3 and Westflank No.1.

Sterling Pacific No.3 has produced, over a period of 21 months, approximately 73,410 barrels of crude oil. (See Figure 11). By projecting the graph it appears highly probable that ultimate yield from this well will be less than

120,000 barrels, which amounts to 3,000 barrels per acre -- on the 40-acre basis. Since the gas-oil ratio on the well is very bad now, this figure is probably too high.

Westflank No. 1 has produced over a period of 10 months 44,879 barrels of crude oil, and will probably never exceed more than 100,000 barrels total production. (See Figure 12). This, on the 40-acre basis, will amount to 2500 barrels per acre recovery. By averaging the figures for Turner Valley Royalties No.1; B. & B. No.1; Sterling Pacific No.3; and Westflank No.1; the per acre yield for the four wells amounts to 7,300 barrels. This seems to be a fair figure to assume as the average acre yield of crude oil in the most prolific and proven part of the Turner Valley Structure.

In this area there are 3,421 acres. At 7,300 barrels per acre recovery, the definitely proven area in the south end should, therefore, yield 25,973,300 barrels of oil, beginning with the discovery of oil at Turner Valley Royalties No.1. Approximately 8,000,000 barrels have been produced to date, thus leaving a definite reserve of 17,973,300 barrels for this south end area.

CENTRAL AND NORTH END RESERVES

To date the completion of wells in the Central and North end of the Valley structure, in the crude oil area, has been rather disappointing. A total of eight holes have been drilled in the possible crude oil area, and of these eight, half of them are definitely non-producers. They are: Dalhousie No.8, Brown Oils No.3, Lowery Petroleums No.2, and Mayland No.3.

In all these wells the top of the limestone lay more than 1700 feet below sea-level, and no crude oil production has been obtained from them. The other four, Model No.1, Royalite No.29, Advance No.5-A, and possibly Home-Millarville No.2, are crude oil producers, but not of great size, (with the exception, possibly, of Home-Millarville No.2). Two of these wells, Model No.1 and Advance 5-A, are old wells (eight to nine years), but not large. They owe their long life to the luck of not having been off-set by other wells nearby. (See Figures 13 and 14). Assuming that these wells will also produce 7,300 barrels per acre - which they would not when off-set - and adding their drainage acreage to that of the south end, the total actual proven crude-oil area is 3,623 acres. At 7,300 barrels per acre, the total known reserve is 3,623 x 7,300 = 26,447,900 barrels, or roughly 25,000,000 recoverable oil, less the 8,000,000 already produced, thus giving 17,000,000 barrels.

SUMMARY AND CONCLUSIONS

1. The Turner Valley structure is an asymmetrical anticlinal faulted fold approximately 17 miles long, two miles wide, and is bounded on the East side by a major sole fault.

2. The Turner Valley structure produces from a porous dolomitic horizon in the Paleozoic limestone.

3. The producing horizon is very variable with respect to porosity and permeability. At, or near, the crest it is fractured locally.

4. The western limit of the structure is de-

fined by "edge-water" which does not appear to be under a hydrostatic head, so that a water drive is non-existent.

5. The average bottom-hole pressure in the crude-oil area during the year 1936 was probably around 2500 pounds - varying from 1600 pounds at the gas-cap crude-oil boundary to 3400 pounds on the extreme west flank.

6. The gas-cap area is situated along the crest of the structure down to 1700 feet below sea-level (with respect to the top of the Paleozoic limestone).

7. The crude-oil area lies between the 1700 and possibly the 4500 foot contour lines below sea-level.

8. To date 3,623 acres have definitely been proven, and the probable recovery will amount to 7,300 barrels per acre. This amounts to a total known reserve of 26,447,900 barrels, including what has already been produced.

9. In addition to the 3,623 acres mentioned above, there are at least 310 acres which are non-productive, as proven by drilling.

10. If the edge-water extends no higher than the 4500 foot contour below sea-level, there are 13,254 additional acres of what may prove to be oil-bearing acreage, but only the drilling of holes will answer the question of productivity and the amount.

11. The per-acre yield of the "possible" oil area not explored to date is a matter of conjecture, and no one, regardless of how "expert" he may be, is in a position to make a prediction. If the present percentage of

dry-holes north of the present proven area continues, or increases, the per acre yield of the "possible oil area" may be uneconomical. The reverse may also be true.

12. It is here recommended that another independent calculation of the known recoverable reserves be made by an engineer in which costs, etc., are fully dealt with.

"Theo. A. Link"

LIST OF MAPS, FIGURES AND GRAPHS

Figure 1 - Structure Contour Map of Turner Valley showing gas-cap Crude Oil Area and Edgewater. (Attached at the end of report).

Figure 2 - Ideal Cross-section showing relationship between Gas, Oil and Water. (Embodied in report).

Figure 3 - Illustration explaining Porosity, Permeability and Fracturing. (Embodied in report).

Figure 4 - South End of Turner Valley showing Pressures as of July, 1936. (Attached at end of report).

Figure 5 - South End of Turner Valley showing Pressures as of November, 1938. (Attached at end of report).

Figures 6,7,8 - Graphs showing relative Porosity of Producing zone in three representative wells. (Attached at end of report).

Figures 9 to 20 - Graphs showing Crude Oil Production, Gas Production and Pressure Decline on Oil Wells and Gas Wells of Turner Valley. (Attached at end of report).

"Theo.A.Link"
Dec.12-1938.

Exhibit 19.

THE CRUDE OIL RESERVE OF TURNER VALLEY

Prepared by

STANLEY J. DAVIES

INTRODUCTION

The following report has been prepared for the Royalite Oil Company Limited. In order to make the subject matter of this report clear, a number of technical terms are defined as follows:

Gas/oil ratio - The number of cubic feet of natural gas required to produce one barrel of oil. It has been expressed in thousands of cubic feet in this report, thus gas-oil ratio 2.1 meaning 2100 cubic feet of gas per barrel of oil.

M.C.F. - Thousands of cubic feet, thus 10,000 cubic feet expressed as 10 M.C.F.

[illegible]

G.P.M. - Gallons of natural gasoline recovered from 1000 cubic feet of natural gas. All measurements of natural gas are taken at 60 degrees Fahrenheit temperature, and 760 millimeters pressure.

Bottom Hole Pressure - The pressure taken at the bottom of the well - Measured in pounds.

Closed in pressure - The pressure measured by pressure gauges in pounds, at the top of the well, when all valves are closed.

Operating pressure - The pressure shown on gauges at the top of well during the operation of the well.

Separator - The apparatus used to separate crude oil from natural gas.

Separator pressure - The pressure registered upon gauges attached to the separator during operation.

Exhibit 19 - Continued. 250

Natural gasoline - The gasoline carried by natural gas in vapour form which is recovered by absorption in an absorption plant. This gasoline cannot be recovered by a separator as it travels with the natural gas.

Critical pressure - The pressure at which natural gas separates from a solution of or combination with crude oil; and where crude oil and natural gas commence to have separate existences.

Hydrostatic head - The depth submerged under water recorded in feet, or measured in pounds pressure. As applied to an oil field, the number of pounds pressure or number of feet the water will rise above the level of the oil in a formation.

Hydrostatic drive - The force of a head of water pushing oil and natural gas ahead of it through a formation. A hydrostatic drive can be upward, laterally or downward through the formation.

Retrograde deposition - The separating of crude oil from natural gas in a formation, because the Pressure is too low to overcome the force of gravity which because the two substances have different specific gravities, tends to separate them. Natural gas is lighter than air, and crude oil is much heavier. There are other chemical and physical laws involved in retrograde deposition, which are as yet imperfectly understood by Petroleum Engineers.

Retrograde condensation - Where natural gas carries, or is combined with lighter hydrocarbons, such as naphtha, and the pressure is reduced, the naphtha, or lighter hydrocarbons are dropped as a liquid, and wet the walls of the containing formation. This liquid can never be recovered until and unless natural gas under equal or higher pressure combines with it.

Exhibit 19 - Continued 250

Naphtha - A light hydrocarbon resembling gasoline, which is dropped out of natural gas as a liquid, and is separated in a separator like crude oil.

Rock Pressure - The same as Bottom hole pressure.

Flowing Pressure - The pressure recorded by gauges at the top of a well during the time that a well is actually flowing.

Back Pressure - The amount of pressure maintained on the formation during the time a well is flowing, much the same as flowing pressure except the weight of the column of fluid in the well must be added to record the correct "back pressure" on the formation.

Charts and Tables

In order to further simplify this report, a number of charts and tables have been compiled.

1. A complete record of the production of crude oil, natural gas and natural gasoline, from the date of completion of all the wells, now producing crude oil, by months, until October 31, 1938.

2. A statement showing all the bottom hole measurements available from the crude oil wells up to and including those taken in November 1938.

3. A statement showing the bottom hole pressure of each well in the crude oil area at the date of completion of the well, and at November 1938. This statement has been divided into two parts, covering a low pressure Area "A", and a high pressure area, Area "B", showing average pressure on each area, with the average pressure of each area.

4. Statement showing the total production from low pressure Area "A", comprising 1670 acres on which 36 wells

have been drilled. The following data is shown: The production of crude oil, natural gas and natural gasoline to October 31, 1938. The average gas/oil ratios to produce the oil. The bottom hole pressure at date of completion. The bottom hole pressure November 1938. The decline in pressure in each well. The average gas/oil ratio for the month of October 1938. The estimated amount of crude oil, natural gas and natural gasoline remaining in Area "A". The total recoverable crude oil, natural gas and natural gasoline from area "A".

5. Statement showing the crude oil, natural gas and natural gasoline produced to October 31, 1938 from Area "B" together with bottom hole pressures at date of completion; average bottom hole pressure; bottom hole pressures in November 1938, and the average bottom hole pressure for all the wells in the area, November 1938.

6. A statement showing complete life history of the Highwood Sarcee Well No. 1 from the date of taking limestone production July 1934, to the end of October 1938, together with well operating pressures, various closed in pressures, naphtha recovery, absorption plant recovery by months, gas production by months with totals of same.

General Statements

The following data has been supplied by Dr. T. A. Link.

Information regarding the porosity, permeability and fracturing of producing zones of Turner Valley.

Information regarding area of gas cap; drilled up and proven part of crude oil area; the possible maximum extent of the crude oil area, and also the position of edge water, and its effect upon the crude oil area.

Exhibit 19 - continued

Graphs of various wells and charts, and bottom hole pressure maps of the present crude area in 1936 and November 1938, Dr. Link recommended a more detailed study of the performance of the field to date, on the basis of which an Engineer could arrive at a more definite figure of recovery of crude oil in the developed area.

Turner Valley production is produced from a porous limestone. This limestone is of exactly the same type in both the crude oil area, and in the naphtha area.

Okalta No. 6 has found water in the limestone on the west flank. This water is not under a high hydrostatic head, and therefore the Turner Valley structure cannot expect any effective water drive to force crude oil out of the wells.

The porosity of Turner Valley limestone is not consistent. One area is more porous than another, and no one can say accurately what acreage is being drained by each individual well. It is therefore necessary to deal with the average drainage over selected areas of groups of wells, some with good porosity, and good permeability, and good recovery per acre, others with poor porosity, or poor permeability and low recovery per acre.

Reservoir Energy and Pressures

Some areas in Turner Valley have high bottom hole pressures, and others have had the pressure partially dissipated.

After the fullest consideration, my conclusion is that we have only one force which will produce crude oil by natural flow in Turner Valley, and that force is the expansion of the natural gas which is now under pressure

in the porous limestone.

To recover the maximum amount of crude oil from the Turner Valley structure, the pressure of the whole area would have had to have been maintained at, or above its original pressure. As over 1000 billion cubic feet of natural gas has now been expelled from the limestone formation, it is impossible to put this amount of gas back into the formation. Therefore the best production method possible is to utilize the pressures that now exist in the Turner Valley area to produce the maximum amount of crude oil and natural gasoline.

It is necessary to describe in some detail, the method by which crude oil is pushed into the wells from a porous formation. Under high pressure, natural gas enters into solution in crude oil in part, and in part forms complex hydrocarbons. These hydrocarbons, and the solution, because natural gas is lighter than air, make up a solution underground which can flow through small pores in the limestone much more easily than crude oil itself can flow.

When a well is drilled into a porous horizon which has crude oil plus gas in it, under high pressure, a lower pressure area is set up at the bottom of the well. From all directions radiating from the bottom of the well, gas and oil start to move towards this lower pressure area. If the weight of the column of liquid and gas in the well is less than the bottom hole pressure, the well will flow, and in addition build up a pressure on valves at top of the well until the pressure is equalized. Pressure readings taken at the top of a well under these conditions, is known as "closed in pressure", when the valves are closed.

If the movement of oil and natural gas can be so

controlled that the natural gas will not leave behind the crude oil molecules with which it is associated, then the ideal production method has been attained. If however, the rate of travel to the bottom of the well becomes too rapid, the natural gas, being so much lighter in weight, leaves its heavy associate behind, and we have what is known as "retrograde deposition", or in naphtha areas "retrograde condensation".

If there were a water drive on the west flank, as the crude oil and gas was removed, water would replace it under a hydrostatic head, and pressures would remain very nearly constant, particularly if the natural gas produced with the oil were returned to the formation.

From the results obtained in Okalta No. 6, we now know that we do not have an effective water drive from the west. On the eastern side of the crude oil area, we have the gas-cap area, which has been reduced in pressure to around 600 pounds average, and to around 400 pounds in part of the southern end of the structure.

There cannot be any added recovery from the natural gas in the gas cap, as natural gas does not enter into solution with liquid hydrocarbons, until it reaches the same or higher pressures, at which it left them. This is a simple physical law which is described as critical pressures of the type of chemical compounds contained in crude oil.

In the case of naphtha, the critical pressure is something above 1100 pounds. In the case of heavier hydrocarbons such as crude oil, the critical pressures run up to, and above, the maximum pressures found in

Exhibit 19 - continued

Turner Valley which is 2660 pounds to date.

The case of critical pressures is well illustrated by the Highwood Sarcee Well No. 1, a complete history to-date of which is shown on Chart #6.

In the case of crude oil wells, Davies No. 2 is enlightening. At the beginning of its history, the bottom-hole pressure in this well was at least 2300 pounds. After producing 100,000 barrels it was 1770 pounds in November 1937. Towards the end of the record, the bottom-hole pressure was 1145 pounds. October bottom-hole pressure was 1180 pounds.

The rapid rise in cubic feet of natural gas for each barrel of oil produced (gas-oil ratio) illustrates the fact that crude oil was being left in the limestone formation. This crude oil cannot be recovered by any production methods now known. There is not enough natural gas available to again raise pressures so that natural gas will again go into solution with the oil. The expense of compressing it would also be prohibitive.

It is therefore clear that the only force available to produce crude oil is the natural gas under pressure in the porous formation surrounding each well. Once this pressure is depleted the well will not flow, nor will oil be brought into the bottom of the well in commerical quantities. There is a very large theoretical space for crude oil and natural gas in the porous limestone in Turner Valley. Unquestionably this space contains natural gas and crude oil, but the oil production gradually declines from the beginning of the

life history of a well, and the natural gas being able to travel farther, and at lower pressures, declines at a slower rate. Gradually the number of cubic feet of gas per barrel of crude oil increases until the gas production becomes a problem, because of the wastage of fuel involved. At some stage the natural gas, carrying natural gasoline in vapour form with it, becomes of more value as fuel, than the crude oil recovered. The law of Alberta provides that the Conservation Board are instructed to stop wastage. From many wells, it is my opinion that at a pressure of 300 pounds the crude wells will have a small incidental crude production, and a comparitively large natural gas production, and any conservation program will make it difficult for such wells to operate profitably. Therefore crude oil reserves can only be calculated on the basis of recoverable oil. Where crude oil is in the ground, but costs more than its value to recover, it will not be recovered.

Gasoline Recovery and Equalization of Pressures

I have taken crude oil reserves down to zero bottom hole pressure and natural gasoline recovery, from the time that it pays to process the natural gas for its contained natural gasoline, in an absorption plant. There is no factor which will effectively reverse the tendency to a continued increase in the gas/oil ratios during the flowing lifetime of crude wells, even repressuring of the area through input wells will merely halt the rate of increase of gas/oil ratios as long as production is being taken from the surrounding wells. Repressuring in order to halt gas/oil ratio rise, must increase botton hole pressure, and add more gas than the output of producing wells, plus leakage to lower press-

Exhibit 19 - continued

ure areas of the gas cap. The fact that wells which have been closed in, in the northern end of Turner Valley show only a 50 # rise over a six year shut in period, prove that travel through the limestone is exceedingly slow.

The proven fact that crude wells show a lower bottom hole pressure when production is drawn at a rapid rate, demonstrates clearly that travel through the limestone is slow. (Statement No. 2). For example during the month of August, all wells had bottom hole pressures taken, Foundation had a bottom hole pressure of 874 # in August, and a bottom hole pressure of 975 in October. Spy Hill had a bottom hole pressure of 1179# in August, and 1235 # in October. Prairie had a bottom hole pressure of 1380 # in August, and 1545# in October, and 1690# in November.

During August the wells were being drawn on heavily, and during October, the crude oil flow was restricted. It is however the actual bottom hole pressures while the well is flowing, which govern gas/oil ratios, and this improvement shown temporarily in gas/oil ratios in many wells during the months of October and November, is due to operation at better bottom hole pressures in these months.. In other words, a lower rate of withdrawal than in August 1938, will recover more oil from the limestone area developed to-date.

Pressure Decline (Loss of energy to produce).

In order to further illustrate my view, I quote a number of examples. Royalite No. 28 at 1610# to 1580# bottom hole pressure required 2300 cubic feet per barrel to lift 9052 barrels; at 1430# to 1365#, 9357 barrels were lifted by 4260 cu. ft. per barrel.

To take a much lower pressure in Sterling No. 3, at a

Exhibit 19 - continued.

pressure of from 685# to 650#, 2570 barrels of oil required 21,350 cubic feet per barrel to lift this amount of oil. At another higher pressure well, Davies No. 2 from 1625# bottom hole pressure to 1565#. 28,429 barrels of oil were produced by 1640 cubic feet per barrel. In the same well, at a pressure of from 1230# to 1145#, 17,504 barrels of crude oil were lifted by 4440 cubic feet per barrel. There is no single instance where gas-oil ratios improved in a crude well, or where less gas per barrel of oil was required in natural flowing conditions as the bottom hole pressure declined. I have already shown the reason for an improvement in bottom hole pressure and gas-oil ratios readings during October and November, 1938.

Bottom Hole Pressures and Gas/Oil Ratios.

Sufficient examples have been given to show the direct relationship between bottom hole pressures and gas/oil rstios. The Statements showing natural gas production by months, and crude oil production by months, provide complete proof of the statement of increasing gas/oil ratio, as bottom hole pressures decline.

It has therefore been established, that in natural flow from the limestone formation, crude oil production is related to the production of natural gas; and bottom hole pressure merely measures the amount of expansion that can take place in the natural gas remaining in the formation.

Estimation of Crude Oil Reserves.

In order to clearly set out the facts upon which the crude oil reserves of Turner Valley are calculated, the writer has, on the basis of Dr. Link's map, divided the present proven crude oil area into two parts;

1. An area "A" from the 1700' foot contour to 2600' contour below sea level, comprising 1670 acres. This area was in fact partially depleted of pressure by leakage to the gas cap, and when crude oil production started, had an average pressure of 1842.9 pounds at start of production, (see map).

2. An Area "B" comprising 1085 acres where original bottom hole pressures were considered to be around 2500# or over when production started. Now declined to an average bottom hole pressure of 1686.8#.

Dealing first with Area "A", the details of all crude production of each well, gas production and pressures are

Exhibit 19 - continued

shown in Chart #4. This area includes the oldest crude wells in the south end, and also the area of lowest bottom hole pressures. It includes 36 wells, or one well to every 46. acres. The total crude oil recovered to October 31, 1938, amounted to 5,198,073 barrels, or 3,112.6 barrels per acre.

It is essential to arrive at the original pressure of wells at date of completion in Area "A". Bottom hole pressures ~~wer~~ were not taken in Turner Valley when the first large crude oil well was brought in in June 1936, and it is impossible to state the exact bottom hole pressure of this well at that time. However the pressure at the top of the well, or close-in pressure, was measured on June 22, 1936, a few days after the well was completed, the pressure was 1100#, and a reliable operator at the well, is of the opinion that a conservative estimate should be 1500# bottom hole pressure for Turner Valley Royalties in June 1936.

Sterling No. 4 is estimated to have had a bottom hole pressure of 1900# in March 1937, based on a cumulative production curve. Share had a gauge pressure after being shut in 36 hours of 1200# in April 1938. Monarch had a bottom hole pressure of 1750# in May 1938. Prairie had a bottom hole pressure of 2225# in February 1938. Brown No.2 had a bottom hole pressure of 2165# in January 1938. Royalite No. 28 had a bottom hole pressure of 2075# in March 25, 1938, after being shut in 17 days. Davies No. 2 is estimated to have had a bottom hole pressure of 2300# in September 1937 (1770# November 24, 1937 - shut in 24 hours).

The bottom hole pressure of Sterling No.3 on May 18, 1937, was 1150#, present bottom hole pressure 635#.

Exhibit 19-continued

The present pressure of Area "A" has resulted in part from a small limited leakage to the gas cap, but mainly to the with drawal of crude oil and especially natural gas.

The November 1938 bottom hole pressure of each well in Area "A" is shown on Statement #3.

During the month of October, the average gas/oil ratio of each well is given on Statement #4. This gas/oil ratio, it has been shown, will increase as bottom hole pressures continue to decline.

However in the event that no further increase in gas/oil ratios took place due to repressuring, or other improved production methods, the remaining pounds of pressure would be dissipated by the expansion of natural gas.

At what bottom limit of pressure will crude oil wells cease to produce oil in paying quantities?

The figure of 300# has been used previously, and the opinion is based upon the factors of disposal of the natural gas, which at some point has more value as fuel than the crude oil produced, plus the factors of critical pressures where crude oil is left behind in the formation, and the crude wells turn into gas wells with only a small incidental crude oil production.

There are a number of crude wells which have reached the 450# stage, such as Century. This well was never a large crude producer, but it has now (October 1938) declined to a production of 11 barrels a day. In October of 1937 it produced 2017 barrels, or roughly 68 barrels a day. The production of Century, British Dominions and Richland No. 3. Well, with their natural gas production is shown on Statement #1. A further drop of 150# in bottom hole pressure will

Exhibit 19 - continued

result in my opinion in a further increase in the amount of natural gas required to produce a barrel of crude oil.

The lower limit therefore when some crude oil wells will cease to be commercial crude wells has been set, based on the data submitted at 300# bottom hole pressure, for their formation pressure flowing lifetime. Repressuring of certain areas may alter the recovery slightly in local areas, but this phase of operations must be treated on a separate cost basis.

To sum up Area "A" the recovered crude oil amounted at October 31st, 1938 to 3112.6 barrels per acre, the amount to be recovered from this area is estimated at 3150.6 barrels per acre, taking pressures down to zero, and it has been pointed out that many well will not have a commercial flow of crude oil below 33# bottom hole pressure.

The total crude oil reserve per acre based upon the data given therefore amounts to 6263.2 barrels per ~~day~~ ac in Area "A".

In Area "B" consisting of 1085 acres with 22 wells, pressures have now reached below the point on the average where Area "A" started to produce 1686# for Area"B" as compared to 1842.9 for Area "A" originally, but I am adding to the recoverable oil per acre from Area "A", 1765.6 barrels per acre for this higher original pressure. The total oil to be recovered from Area "B" therefore amounts to 8028.8 barrels per acre. The original pressures in Area "B" are illustrated by the figures of bottom hole pressures, and the dates of completion of various wells as shown on Statement #2. The present bottom hole pressures November 1938, are also shown on Statement #2.

Exhibit 19 - continued

Recoverable reserves and Market

After having arrived at the recoverable crude oil in Area "A" (1670 acres) and Area "B" (1085 acres) which amount to 6263.2 bbls., and 8028.8 bbls. respectively per acre, the average for the two areas amounts to 6958 bbls. per acre.

The balance of the acreage proven and now being drilled in the south end of Turner Valley, amounts to 666 acres on which a recovery similar to Area "B" can be estimated. The recovery from these three areas "A","B", and the proven but undrilled area therefore amounts to 10,459,544, 8,711,356; and 5,347,247 bbls. respectively. To this total of 24,518,148 must be added the reserve in the Advance 5A, Model and Royalite 29 area, which has been placed at 6263.2 barrels per acre, similar to Area "A". The area amounts to 202 acres on which the reserve amounts to 1,265,166 bbls.
The total proven reserves of crude oil in the 3933 acres explored, amounts to 25,783,314 barrels. Of this reserve, 7,807,082 barrels has been produced to October 31, 1938.
The proven crude oil reserve remaining, therefore, amounts to 17,976,232 barrels, and the recoverable crude oil from 3933 acres amounts to 6,555 barrels per acre.

From Dr. Link's map, the total possible crude oil area of Turner Valley amounts to 17,187 acres. Of this area 3933 acres have been explored to date, of which 310 acres, or approximately 8% was found to be dry, and 3623 acres have been proven to be productive.

It is safe to assume that future development will find about the same percentage of dry acreage, which would make 1375 dry acres. No one knows where this nonproductive acreage may be found, and as a result wells will be drilled which will be failures.

Exhibit 19 - continued

Four such wells, Dalhousie No. 8, Brown Oil No. 3, Lowery Petroleums No. 2, and Mayland No. 3, have already been drilled.

The area left to explore in Turner Valley amounts to 13,922 acres. On the basis of drilling already done, 70 wells have been drilled to explore 3265 acres, or 46.6 acres per well.

Cost of Drilling Wells

On a basis of one well to 40 acres, a total of 348 wells will be required. Some of these wells are already drilling, The cost of these wells on the average, will vary with their depth, but on the average will cost $165,000.00 per well. This will require the total capital sum of $57,420,000.00.

The only possible method of saving any of this capital is by wider spacing of wells, and as there is no scientific basis for one well to 40 acres, it may be possible to make some saving in this direction.

The lifetime of Turner Valley depends entirely on the rate of drilling, and this depends upon the funds available for this purpose, which is outside the knowledge of the writer.

To supply a Western Canadian market of 6,000,000 barrels a year, however; and some increase may be possible in this figure, a large number of wells must be drilled each year. On the average of 46.6 acres per well, and an average recovery of 6555 barrels per acre, the average recovery per well amounts to 305,463 barrels.

On the basis of 40 acres per well, the average recovery per well would amount to 262,200 bbls. This recovery must

Exhibit 19 - continued

cover gross royalties, many of which are 25%, lease cost, drilling cost, production expense, and taxation. On the 40 acre basis, it will be necessary to drill 30 wells a year in order to safely supply 6,000,000 barrels a year, and this assumption is based upon finding the production area equal to, or greater than that in the south end of Turner Valley. This will require a yearly capital outlay of $4,950,000.00 for drilling alone.

The discovery of another shallow oil field, where the cost of drilling is less than $165,000.00 per well, would effectively and suddenly end develment in Turner Valley, as operators could not compete with lower cost oil. It is possible that during the next 12 years a new oil field will be discovered in Alberta.

The volume of natural gas produced by crude oil wells with the 7,807,082 barrels of crude oil produced to date, amounted to 56,535,216,000 cubic feet.

Along with this natural gas, natural gasoline is prouced, and 118,199 barrels were recovered. The value is $1.94 per barrel.

produce the 5,261,502 bbls. of crude oil remaining in the Area "A" will require a production of 38,679,356,000 cubic feet of natural gas, which will contain 287,300 bbls. of natural gasoline, at an average gasoline content of .26 gallons per thousand cubic feet. Many wells will exceed this recovery, depending upon the separator pressure held on the wells. Some wells have now reached a content of .5 gallons per thousand, as at Century Royalties, and at low separator pressures the gasoline content will exceed .5 gallons per thousand. Natural gasoline recovery can be a

Exhibit 19 - continued

substantial part of the revenue fron crude wells.

As has been pointed out previously, natural gas disposal is a serious problem. Area "A" will produce 38,679,556 000 cubic feet to recover the remaining crude oil, plus the 36,951,636,000 cubic feet produced to October 31, 1938. This is an average of 45,288,000 cubic feet per acre. To this must be added the gas production to date from Area "B" amounting to 3,453,000 cubic feet per acre, or a total of 48,841,000 cubic feet per acre on all acreage similar to Area "B" in pressure.

Summary of Gas Production

On the 3933 acres explored to date, we therefore have the following natural gas production:

Area "A" - 1670 acres @ 45,288,000 cubic feet per acre

Area "B" - 1085 acres @ 48,741,000 cubic feet per acre

Undrilled
but proven- 666 acres @ 48,741,000 cubic feet per acre

Proven dry- 310 acres - Nil.

Model and
Advance
Area. - 202 acres @ 45,288,000 cubic feet per acre

The total crude oil originally recoverable from the area is 25,783,314 bbls., of which 7,807,082 bbls. has been produced.

The total natural gas production is 170.1 billion cubic feet, of which 36.7 billions have already been produced; and 1,263,750 barrels of natural gasoline, of which 141,063 barrels have been produced.

The average recovery per acre is as follows:

6,555 barrels of Crude Oil.

43.2 million cubic feet of natural gas.

321 barrels of natural gasoline.

Exhibit 19 - continued

PRESSURE MAINTENANCE Vs. REPRESSURING.

The estimated recovery figures given for crude oil are regarded as maximum recovery under present practice. Since gas/oil ratios will increase from those taken as of October, 1938, it is highly probable that the figures for crude oil recovery are too high. This means that while the natural gas will be produced, less crude oil will be recovered.

It has been shown that at 300 lbs. bottom hole pressure, the recovery of crude oil becomes so small that it does not pay to operate wills as crude oil wells. Further, the conservation of natural gas makes it necessary to dispose of natural gas, and this cost, with a small crude recovery, will tend to make it uneconomic to operate small crude oil wells, even though the Conservation Board allows it. All of these factors will decrease the total recovery figures for crude oil.

The only method at present practical, which can be suggested here for greater recovery is "Pressure Maintenance". "Pressure maintenance" should not be confused with what is called "repressuring". All wells, regardless of ownership, should be operated to provide as slow a reservoir pressure decline as possible. This is termed or defined as "Pressure Maintenance". Every mechanical aid possible should be used to arrest the decline of bottom hole pressure. This would constitute real conservation.

It will be clear from the bottom hole pressure decline in August and September, that the present crude oil area cannot be drained at the rate of withdrawal which was ordered in September by the Conservation Board.

Exhibit 19 - continued

It will require the drilling of more wells to make up for the decline of present wells in order to maintain sufficient oil for market requirements.

The withdrawal rate should be constant, regardless of market requirements; and should be aimed at the maximum efficiency in using the reservoir pressure now present in the natural gas.

Repressuring or pumping gas back into the formation is not a method by which more crude oil will be recovered, due to the nature of the limestone formation as described by Dr. Link, and also to the critical pressures needed to absorb oil into the gas.

As it was important to have the total amounts of natural gas production figures, the writer submitted maximum crude oil recovery figures under present operating conditions.

More efficient operation methods will have to be devised to obtain a greater recovery.

"Stanley J. Davies"

ADVANCE NO. 5-A

YEAR 1930	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	GPM	BBLS. NATURAL GASOLINE	YEAR 1933	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	GPM	BBLS. NATURAL GASOLINE	YEAR 1936	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	GPM.	BBLS. NATURAL GASOLINE
JAN.						506	36,890				1,235	47,760	.21	286.6
FEB.						369	33,320				1,129	42,930	.21	257.6
MAR.						466	36,580				1,165	48,900	.21	293.4
APR.						558	42,000				1,090	45,630	.24	312.9
MAY						712	43,400	.13	161.2		1,117	47,150	.24	323.3
JUNE						582	48,000	.20	274.3		1,190	45,200	.24	309.9
JULY	1,267	77,000				534	52,700	.20	301.1		1,231	46,950	.21	281.7
AUG.	4,747	403,000				544	46,500	.31	411.9		1,193	43,870	.21	263.2
SEPT.	4,361	255,000				683	51,000	.31	451.7		1,235	43,360	.21	260.2
OCT.	3,550	232,500				870	52,700	.18?	271.		974	39,200	.20	224.
NOV.	3,787	240,000				844	43,800	.13?	225.3		1,049	39,440	.20	225.4
DEC.	3,619	217,000				906	44,547	.18?	229.1		1,209	43,400	.20	248.
	21,331	1,424,500				7,574	531,437		2,325.6		13,817	533,790		3,286.2
1931					1934					1937				
JAN.	3,369	217,000				652	45,890	.37	485.1		1,135	40,490	.22	254.5
FEB.	2,899	207,200				645	39,680	.37	419.5		938	35,380	.22	222.4
MAR.	2,645	167,400				808	42,850	.37	453.		1,284	43,910	.22	276.
APR.	2,481	192.000				815	42,570	.29	352.7		1,205	43,000	.28	344.
MAY	2,151	198,400				818	42,360	.29	351.		1,234	45,180	.28	361.4
JUNE	2,153	147,000				872	48,100	.29	398.5		1,287	39,940	.28	319.5
JULY	728	37,000				879	48,740	.29	403.8		1,896	83,790	.23	550.6
AUG.	1,066	68,233				819	46,350	.29	384.		2,352	72,280	.23	475.
SEPT.	1,051	78,000				983	47,410	.29	392.8		1,722	56,790	.23	373.2
OCT.	863	58,900				907	49,110	.31	435.		1,481	50,090	.23	329.2
NOV.	907	69,000				968	47,020	.31	416.5		869	39,380	.23	258.8
DEC.	976	86,800				1,102	48,840	.31	432.6		1,679	49,320	.25	352.3
	21,289	1,526,933				10,268	548,920		4,924.5		17,082	599,550		4,116.9
1932					1935					1938				
JAN.	959	89,900				1,179	47,360	.25	338.3		490	32,290	.20	184.5
FEB.	643	52,200				1,005	43,270	.25	309.1		2,446	81,603	.20	466.3
MAR.	945	71,300				1,160	47,980	.25	342.7		2,129	75,819	.20	433.3
APR.	1,086	72,800				1,086	46,350	.24	317.8		2,494	75,030	.23	493.1
MAY	784	56,100				1,082	48,340	.24	331.5		3,404	84,419	.23	554.7
JUNE	662	56,400				987	46,100	.24	316.1		2,763	74,273	.23	488.1
JULY	501	51,000				1,008	48,900	.28	391.2		2,938	77,466	.26	575.5
AUG.	588	53.875				756	44,050	.28	352.4		3,297	64.093	.26	476.1
SEPT.	674	50,613				1,045	47,320	.28	378.6		3,183	55,190	-	-
OCT.	395	31,000				972	47,670	.27	367.7		2,869	51,183	.26	380.2
NOV.	384	30,160				1,020	47,290	.27	364.8					
DEC.	464	37,200				927	45,330	.27	349.7					
	8,085	652,548				12,227	559.960		4,159.9		26,013	671,366		4,051.8
							GRAND TOTAL -				137,686	7,049,004		22,864.9

	BARSAC				B AND B				BRITISH DOMINION #4			
1937	BBLS. CRUDE OIL.	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL.	M.C.F. NATURAL GAS.	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL.	M.C.F. NATURAL GAS.	G.P.M.	BBLS. NATURAL GASOLINE
JAN.									3068	93880	.28	751.
FEB.					30878	168000			2688	82870	.28	663.
MAR.					22283	157950			2918	88710	.28	709.7
APR.					19614	135156			2758	84380	.30	723.3
MAY					18417	140076	.2895	1158.6	2705	84480	.30	724.1
JUNE					17815	119945	.2859	979.8	2259	71420	.30	612.2
JULY					17911	108600	.2510	778.8	2287	75920	.32	694.1
AUG.					22771	166485	-	-	1868	79510?	.32	726.9
SEPT.					17444	156990	.2440	1094.5	1931	74081?	.32	677.3
OCT.					12488	145135	.2750	1140.3	1946	71055?	.33	669.9
NOV.					7803	84390	.1569	378.3	1307	66990	.33	631.6
DEC.					12110	72764	.1816	377.5	972	67780	.33	639.1
					199534	1455491		5907.8	26707	941076		8222.2
1938.												
JAN.					7221	46325	.1336	176.8	669	71920	.35	719.2
FEB.					12215	70207	.1654	331.8	593	74980	.36	749.8
MAR.					12857	79770	.1692	385.6	338	77400	.35	774.
APR.					11412	90140	.1968	506.9	324	63220	.39	704.4
MAY					12674	111217	.1755	557.7	324	54501	.39	607.3
JUNE	5705	11460	-		9406	122682	.1655	580.1	300	51924	.39	578.6
JULY	9581	20429	-		9134	115075	.2425	797.3	182	55540	.44	698.2
AUG.	14268	51644	-		9056	125738	-	-	210	55894	.44	702.7
SEPT.	13930	61099	-		5006	131011	.3836	1435.9	156	50473	.44	634.5
OCT.	11553	55443	-		2019	39032	.3045	339.6	82	31759	.49	444.6
NOV.												
DEC.												
	55037	200075			91000	931197		5111.7	3178	587611		6613.3
GRAND TOTAL	55037	200075			290534	2386688		11019.5	29885	1528687		14835.5

	Brown No. 1				Brown No. 2				Brown No. 4.			
1937	BBLS. CRUDE OIL.	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL.	M.C.F. NATURAL GAS.	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL.	M.C.F. NATURAL GAS.	G.P.M.	BBLS. NATURAL GASOLINE
SEPT.	3044	10000	-		1881	2700	-					
OCT.	6380	23250	-		7144	15500	-					
NOV.	14187	61704	-		5980	9708	-					
DEC.	20287	24477	-		7188	24477	-					
	43898	119431			22193	52385						
1938												
JAN.	29520	71845	-		10363	14600	-					
FEB.	17279	31315	-		12410	22642	-					
MAR.	24240	51280	-		13137	27214	-					
APR.	20658	60060	-		11350	28778	-		6412	19832	-	
MAY	26172	63160	-		13868	26533	-		13997	24825	.1459	103.5
JUNE	19284	46005	-		11668	15628	-		10300	16453	.1438	67.6
JULY	20705	65249	-		13389	15477	-		12522	22875	.1567	102.4
AUG.	21076	155775	-		16039	29663	-		15080	37258	.1785	190.
SEPT.	13088	147485	-		19611	58018	-		16244	65307	.1785	333.1
OCT.	6199	70715	-		15454	45345	-		12356	44853	.1785	228.7
NOV.												
DEC.												
	198221	762889			137289	283898	-		86911	231403		1025.3
GRAND TOTAL	242119	882320			159482	336283			86911	231403		1025.3

1938	Brown No. 5	
OCT.	9100	45061

CENTURY OILS LTD.

BBLS. CRUDE OIL.	M.C.F. NATURAL GAS.	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
2817	244900						
5770	336001						
4287	228740						
4047	240078						
16921	1065719						
				1936			
4098	199554			5140	195510	.18	1005.5
3888	178004			4631	182070	.18	936.4
4682	197532			5085	195990	.18	1007.9
4952	192690			5039	187800	.21	1126.8
4591	198741			5293	194330	.21	1166.
4872	192690			4845	181390	.21	1088.3
4796	197804	.16	904.3	5529	196260	.24	1345.8
5123	192200	.16	878.6	5653	196510	.24	1347.5
4695	196830	.14	787.3	5144	189279	.24	1297.9
5085	188170	.14	752.7	4900	195030	.27	1504.5
4892	193590	.14	774.4	4429	186821	.27	1441.2
5131	194370	.18	999.6	4534	195480	.27	1508.
56806	2322175		5096.9	60222	2296470		14775.8

CENTURY OILS LTD. — COMMOIL NO. 1 — COMMOIL NO. 2

1937	BBLS. CRUDE OIL.	M.C.F. NATURAL GAS.	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL.	M.C.F. NATURAL GAS.	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL.	M.C.F. NATURAL GAS.	G.P.M.	BBLS. NATURA GASOLI
JAN.	3652	193900	.27	1495.8								
FEB.	3474	168230	.27	1297.8								
MAR.	3657	183870	.27	1418.4								
APR.	3316	174500	.26	1296.3								
MAY	3088	177110	.26	1315.7								
JUNE	2507	164000	.26	1218.3								
JULY	3324	189020	.26	1404.2								
AUG.	5031	291560	.34	2832.3								
SEPT.	3011	252810	.34	2455.9								
OCT.	2017	231970	.37	2452.2	5360	8250	–					
NOV.	1676	222140	.37	2348.3	17399	45000	–					
DEC.	1551	221710	.37	2343.8	12122	37500	–					
	36304	2470820		21879.	34881	90750						
1938												
JAN.	1399	209800	.40	2397.7	30927	47694	–					
FEB.	1154	178008	.40	2034.4	36574	40137	–					
MAR.	1074	172261	.40	1968.7	39529	59995	.18	308.5				
APR.	901	153215	.41	1794.8	31637	42062	.19	228.3				
MAY	756	145854	.41	1708.6	29235	41538	.19	225.5				
JUNE	647	134428	.41	1574.7	23066	41160	.19	223.4				
JULY	742	163403	.45	2126.6	27413	54328	.19	294.9				
AUG.	710	164670	.45	2117.2	31758	85693	.19	465.2	221			
SEPT.	621	141899	.45	1824.4	35670	108761	.19	590.4	21631	37906		
OCT.	352	77257	.51	1125.7	19109	58308	.24	399.8	19412	29340		
NOV.												
DEC.												
	8356	1542795		18672.8	304918	579676		2736.	41264	67246		
GR AND TOTAL	178609	9697979		60424.5	339799	670426		2736	41264	67426		

	CONSOLIDATED OILS #1				CORONATION ROYALTIES #1				DAVIES PETROLEUMS #1			
YEAR	CRUDE OIL BBLS.	NATURAL GAS M.C.F.	G. P. M.	NATURAL GASOLINE BBLS.	CRUDE OIL BBLS.	NATURAL GAS M.C.F.	G. P. M.	NATURAL GASOLINE BBLS.	CRUDE OIL BBLS.	NATURAL GAS M.C.F.	G. P. M.	NATURAL GASOLINE BARRELS
1938												
APRIL									7599	23230		
MAY									13155	15035		
JUNE									6168	8010		
JULY					11500	12997			7138	7871		
AUG.					15000	22379			11547	18281		
SEPT.					17456	29598			16033	38250		
OCT.	10829	11328	-		15462	27802			13120	29450		
	10829	11328			59418	92776			74760	140127		

	DAVIES PETROLEUMS NO. 2				DAVIES PETROLEUMS NO. 4				FIRESTONE PETROLEUMS NO. 1			
1937	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	GPM	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	GPM	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	GPM	BBLS. NATURAL GASOLINE
SEPT.	37829	58520	-									
OCT.	48992	101340	-									
NOV.	36594	48680	.21	292.1					7776	21000	-	
DEC.	33299	48250	.21	289.5					10838	27280	-	
	156714	256790		581.6					18614	48280		
1938												
JAN.	38386	95040	.19	515.9					11154	16960	-	
FEB.	27187	45447	.19	246.7					7639	15010	-	
MARCH	30193	52944	.19	287.4					9160	23632	-	
APRIL	25249	55560	.19	301.6					6399	18355	-	
MAY	24788	57160	.19	310.3					14724	53973	-	
JUNE	17955	38712	.19	210.2					13410	60489	-	
JULY	20191	66011	.17	320.6					13538	66656	-	
AUG.	23743	108133	.17	525.2					13029	83722	-	
SEPT.	18582	101023	.17	490.7					10728	81077	-	
OCT.	10071	55882	.19	303.4	4800	6000?	-		8053	58017	-	
	236345	675912		3512.					107834	477891		
GRAND TOTAL:	393059	932702		4093.6					126448	526171		

	FOUNDATION PETROLEUMS				FOUR STAR PETROLEUMS				FRONTIER ROYALTIES			
1936	CRUDE OIL BBLS.	M.C.F. NATURAL GAS.	GPM.	NATURAL GASOLINE BBLS.	CRUDE OIL BBLS.	M.C.F. NATURAL GAS	GPM.	NATURAL GASOLINE BBLS.	CRUDE OIL BBLS.	M.C.F. NATURAL GAS	GPM.	NATURAL GASOLINE BBLS.
DEC.	4737	18600	-									
	4737	18600										
1937												
JAN.	6646	30550	-									
FEB.	1903	6600	-									
MARCH	6937	26595	-									
APRIL	6861	26632	-									
MAY	7041	28759	-									
JUNE	7030	26485	-									
JULY	15002	103412	-									
AUG.	12201	75848	.2454	531.8								
SEPT.	8981	53350	.1290	196.6								
OCT.	11348	52055	.1188	176.7	5301	15000	-					
NOV.	8733	21990	-		8146	17681	-					
DEC.	7386	40400	-		8067	34811	-					
	100069	492676		905.1	21514	67492						
1938												
JAN.	7846	17123	-		8087	16527	-					
FEB.	5574	22540	-		10634	26763	-					
MARCH	6908	17276	-		13229	38103	-					
APRIL	7423	26150	-		11642	28744	-					
MAY	10314	39667	-		11411	34585	.1590	157.1				
JUNE	11785	50504	-		7958	25154	.1593	114.5	18877	40116	-	
JULY	11146	67238	-		8512	26889	.1919	147.4	49769	81823	-	
AUG.	9718	169279	-		10923	32747	.1927	180.3	66801	201956	-	
SEPT.	5507	103293	-		12397	48565	.1667	231.3	54631	192448	-	
OCT.	3120	39266	-		7015	26466	.1689	127.7	25700	63311	-	
	79341	552336	-		101808	304548			215778	579654		
GRAND TOTAL:	184147	1063612			123322	372040		958.3	215778	579654		

	GLOBE ROYALTIES #1				GRANVILLE ROYALTIES #1				MERCURY ROYALTIES #1			
YEAR	CRUDE OIL BBLS.	M.C.F. NATURAL GAS	GPM	NATURAL GASOLINE BBLS.	CRUDE OIL BBLS.	M.C.F. NATURAL GAS	GPM	NATURAL GASOLINE BBLS.	CRUDE OIL BBLS.	NATURAL GAS M.C.F.	GPM	NATURAL GASOLINE BBLS.
1937												
OCT.					5715	19500	-					
NOV.					4751	17720	-					
DEC.					3859	19640	-					
					14325	56860	-					
1938												
JAN.					4250	11925	-					
FEB.					4148	8550	-					
MARCH					5328	12146	.14	48.6				
APRIL					4586	15987	.14	63.6				
MAY					5622	19186	.14	76.7				
JUNE		3000	-		4340	16866	.14	67.5				
JULY	10074	7894	-		5093	20998	.17	102.				
AUG.	9528	5745	-		5454	28308	.17	137.5	8001	73160	.25	
SEPT.	7924	21000	-		5582	35545			8874	51501	.32	
OCT.	7253	19555	-		5630	32206			8354	48258	.32	
	34779	57194			50033	201717		495.9	25229	172919		
GRAND TOTAL:	34779	57194			64358	258577		495.9	25229	172919		

MIRACLE NO. 2

1933	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
SEPT.	608	45,000		
OCT.	3,555	224,750		
NOV.	4,128	217,500		
DEC.	4,204	226,300		
	12,495	713,550		
1934				
JAN.	4,206	300,080		
FEB.	3,908	267,680		
MAR.	4,135	309,504		
APR.	3,623	295,200		
MAY	3,550	303,893		
JUNE	3,313	288,360		
JULY	3,317	286,254		
AUG.	2,970	275,032		
SEPT.	3,187	290,400		
OCT.	3,108	286,688		
NOV.	2,501	222,210		
DEC.	3,035	255,688		
	40,673	3,380,989		

1935	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
JAN.	3,244	268,088		
FEB.	2,648	226,612		
MAR.	2,929	250,790		
APR.	2,652	234,630		
MAY	2,557	238,359		
JUNE	2,342	225,630		
JULY	2,354	230,609		
AUG.	2,188	215,326		
SEPT.	2,192	198,030		
OCT.	2,543	199,578		
NOV.	2,568	192,150		
DEC.	2,546	188,790		
	30,763	2,668,592		
1936				
JAN.	2,569	188,827		
FEB.	2,273	169,932		
MAR.	2,143	173,334		
APR.	1,608	136,732		
MAY	1,325	121,110	.234	809.7
JUNE	2,075	158,621		
JULY	2,084	173,289	.234	1,158.6
AUG.	2,071	177,938	.266	1,352.3
SEPT.	2,031	171,819	.266	1,305.8
OCT.	2,075	169,108	.266	1,285.2
NOV.	2,039	152.726	.266	1,160.7
DEC.	2,037	142,553	.266	1,083.4
	24,330	1,935,989		8,155.7

1937	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
JAN.	1,928	142,776	.227	926
FEB.	1,927	126,658	.227	821.5
MAR.	2,001	140,918	.227	914
APR.	1,730	133,226	.227	864.1
MAY	1,497	131,641	.33	1,241.2
JUNE	1,384	122,055	.33	1,150.8
JULY	2,143	132,780	.33	1,251.9
AUG.	2,194	206,830	.33	1,950.1
SEPT.	1,808	197,069	.22	1,238.7
OCT.	1,777	194,203	.33	1,831.1
NOV.	1,742	176,775	.38	1,919.3
DEC.	1,777	180,563	.38	1,960.4
	21,908	1,885,494		16,069.1
1938				
JAN.	1,649	174,476	.38	1,894.3
FEB.	1,509	134,333	.34	1,305
MAR.	1,586	151,773	.34	1,474.4
APR.	1,447	148,905	.34	1,446.5
MAY	1,372	166,462	.35	1,664.6
JUNE	1,087	145,000	.35	1,450
JULY	1,137	193,553	.35	1,935.5
AUG.	1,297	160,296	.38	1,740.3
SEPT.	1,226	173,666	.38	1,885.5
OCT.	1,371	166,054	.38	1,802.9
	13,681	1,614,518		16,599
GRAND TOTAL	143,850	12,199,132		40,823.8

MODEL OILS NO. 1

YEAR 1930	BBLS. CRUDE OIL	MCF. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	YEAR 1933	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	YEAR 1936	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
JAN.						4,007	66,650				4,547	37,000		
FEB.						3,648	54,600				4,296	30,289		
MAR.						4,037	65,100				4,405	23,912		
APR.	2,717	270,000				3,891	67,500				4,173	20,205		
MAY	3,251	248,000				3,655	69,750				4,282	20,618		
JUNE	4,143	180,000				3,456	57,750				4,176	22,281		
JULY	4,757	186,000				3,956	63,550				4,466	22,929		
AUG.	5,228	180,000				4,102	63,550				4,789	21,671		
SEPT.	5,018	150,000				3,892	60,000				4,433	20,000		
OCT.	5,155	155,000				4,340	60,326				4,588	20,000		
NOV.	4,779	135,000				4,273	58,920				4,452	20,000		
DEC.	5,852	139,000				4,382	60,000				4,558	20,000		
	40,900	1,643,000				47,639	747,696				53,165	278,905		
1931					1934					1937				
JAN.	5,884	129,900				4,377	59,396				4,374	20,000		
FEB.	4,885	84,000				4,006	52,276				3,893	18,000		
MAR.	5,027	93,000				4,371	57,939				4,302	18,000		
APR.	5,407	105,000				4,167	56,730				4,032	18,000		
MAY	5,573	117,800				4,331	53,700				3,969	18,000		
JUNE	5,199	120,000				4,264	55,680				3,878	17,000		
JULY	5,407	124,000				4,179	53,754				4,256	16,000		
AUG.	5,161	117,800				4,484	54,188				4,128	16,000		
SEPT.	5,171	111,000				4,320	53,130				4,119	15,000		
OCT.	5,502	114,700				4,323	55,118				4,461	13,175		
NOV.	5,300	111,000				4,311	52,860				4,080	13,080		
DEC.	5,453	122,450				4,302	52,945				4,140	13,330		
	63,969	1,341,650				51,435	657,716				49,632	195,585		
1932					1935					1938				
JAN.	5,434	119,350				4,318	53,258				4,050	13,175		
FEB.	5,042	111,000				3,746	46,172				3,592	11,200		
MAR.	5,298	119,350				4,228	46,779				4,105	12,927		
APR.	5,058	115,500				4,153	48,8L0				3,828	12,090		
MAY	4,994	109,950				4,292	49,879				3,784	11,470		
JUNE	4,789	98,100				4,304	47,010				3,547	11,100		
JULY	4,882	96,100				4,469	45,446				3,763	12,555		
AUG.	3,851	96,100				4,309	41,323				3,957	18,011		
SEPT.	2,866	68,100				4,341	40,710				3,465	19,620		
OCT.	3,253	58,590				4,628	37,603				3,565	19,034		
NOV.	3,137	56,700				4,430	37,000				37,656	141,182		
DEC.	3,805	60,760				4,613	37,000							
	52,409	1,109,600				51,831	530,990	GRAND TOTAL			448,636	6,646,324		

YEAR	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
1935				
NOV.		20,010		
DEC.		20,567		
		40,577		
1936				
JAN.	766	20,434	-	
FEB.	648	20,000	-	
MAR.	721	20,000	-	
APRIL	668	20,000	-	
MAY	705	20,000	-	
JUNE	642	20,000	-	
JULY	654	20,000	-	
AUGUST	638	20,000	-	
SEPT.	590	17,933	-	
OCT.	616	20,652	-	
NOV.	619	19,984	-	
DEC.	662	20,020	-	
	7,929	239,023	-	
1937				
JAN.	659	15,100	-	
FEB.	574	14,472	-	
MAR.	622	19,065	-	
APRIL	588	15,106	-	
MAY	603	17,150	-	
JUNE	528	17,472	-	
JULY	559	20,023	-	
AUGUST	535	17,721	-	
SEPT.	497	15,403	-	
OCT.	556	17,391	-	
NOV.	518	17,186	-	
DEC.	568	17,000	-	
	6,807	203,089	-	

YEAR	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
1938				
JAN.	542	15,486	-	
FEB.	481	13,638	-	
MAR.	521	13,099	-	
APRIL	553	12,964	-	
MAY	515	14,889	-	
JUNE	466	13,800	-	
JULY	491	14,186	-	
AUG.	459	14,904	-	
SEPT.	431	13,228	-	
OCT.	473	12,490	-	
NOV.				
DEC.				
	4,932	139,684	-	
GRAND TOTAL	19,668	622,373		

MODEL NO. 3

YEAR 1936	BARRELS CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BARRELS NATURAL GASOLINE
JAN.	-	-		
FEB.	51	8,041		
MAR.	255	36,822		
APRIL	43	12,472		
MAY	238	53,888		
JUNE	262	45,002		
JULY	236	51,450		
AUGUST	218	57,161		
SEPT.	222	47,804		
OCT.	262	43,843		
NOV.	283	39,826		
DEC.	249	37,607		
	2,319	433,916		
1937				
JAN.	249	37,189		
FEB.	226	36,989		
MAR.	244	40,431		
APRIL	268	37,582		
MAY	250	39,296		
JUNE	211	38,335		
JULY	245	38,911		
AUGUST	234	37,170		
SEPT.	260	37,641		
OCT.	282	34,510		
NOV.	291	37,651		
DEC.	320	31,648		
	3,080	447,353		
1938				
JAN.	371	32,952		
FEB.	329	30,070		
MAR.	344	31,498		
APR.	364	33,761		
MAY	469	44,715		
JUNE	423	42,572		

1938 - CONTINUED

	BARRELS CRUDE OIL	M.C.F. NATURAL GAS
JULY	463	41,514
AUGUST	481	43,233
SEPT.	458	42,689
OCT.	433	40,920
	4,135	383,924
GRAND TOTAL	9,534	1,265,193

	MODEL SPOONER No. 1 WELL				MODEL SPOONER No. 2 WELL				MONARCH			
1937	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
JULY									6395	13,950		
AUG.									19228	46,500		
SEPT.									15062	33,000		
OCT.	13,160	145,000							12400	54,250		
NOV.	11,971	174,392							9520	24,000		
DEC.	11,609	139,944	.2249	899.2					8973	30,200		
	36,740	459,336		899.2					71,578	201,900		
1938												
JAN.	12,527	120,586	.2686	925.4					9619	20,822		
FEB.	8,321	100,090	.1921	549.3					7061	25,146		
MAR.	11,873	138,538	.2293	907.6					8226	35,845		
APR.	8,968	122,188	.2502	873.5					8254	28,519		
MAY	9,840	139,877	.2408	962.4	3390	11,000			8193	26,518		
JUNE	8,892	205,495	.2561	1503.6	31171	92,600			6681	37,361		
JULY	4,383	196,914			29158	103,700			6915	36,996		
AUG.	7,073	199,900			25945	98,350			9062	45,057		
SEPT.	4,566	170,156	.2530	1230	14696	60,925	.1698	295.6	8359	54,184		
OCT.	5,679	173,800			14972	54,757	.1730	270.7	7704	45,509		
NOV.												
DEC.												
	82,122	1567,544		6951.8	119332	421,332		566.3	80574	356,157		
GRAND TOTAL	118,862	2026,880		7851	119332	421,332		566.3	152152	558,057		

	National #1				National #2				Prairie			
1937	Bbls. Crude Oil	M.C.F. Natural Gas	G.P.M.	Bbls. Natural Gasoline	Bbls. Crude Oil	M.C.F. Natural Gas	G.P.M.	Bbls. Natural Gasoline	Bbls.. Crude L Oil	M.C.F. Nat. Gas	G.P.M.	Bbls. Natural Gasoline
Oct.									8,356	23,400	-	
Nov.									23,863	42,000	-	
Dec.	27,312	126,900	-						22,459	48,200	-	
	27,312	126,900							54,678	113,600		
1938												
Jan.	8,101	26,500	-						24,554	37,588	-	
Feb.	9,838	33,424	-						15,989	24,288	-	
Mar.	13,752	46,699	-						18,872	21,731	-	
Apr.	19,183	69,049	-						18,168	30,053	-	
May	23,934	81,745	-		718	4,240	-		33,963	80,453	-	
June	20,632	68,619	-		6,598	15,916	-		26,929	61,966	-	
July	23,702	110,357	-		5,473	8,218	-		31,881	99,187	-	
Aug.	18,204	140,758	-		6,809	9,743	-		31,774	106,054	-	
Sept.	14,536	123,750	-		6,962	8,820	-		22,066	93,107	-	
Oct.	13,699	113,940	-		6,864	8,516	-		10,451	39,762	-	
	165,581	814,841	-		33,424	55,453	-		234,647	594,189	-	
Grand Total	192,893	941,741	-		33,424	55,453	-		289,325	707,789	-	

	Richland No. 2				Richland No. 3				Rich-Well			
1937	Bbls. Crude Oil	M.C.F. Natural Gas	G.P.M.	Bbls. Natural Gasoline	Bbls. Crude Oil	M.C.F. Natural Gas	G.P.M.	Bbls. Natural Gasoline	Bbls. Crude Oil	M.C.F. Natural Gas	G.P.M.	Bbls. Natural Gasoline
July					301							
Aug.					5,669	124,000	-					
Sept.					7,388	171,000	-					
Oct.					4,783	176,000	-					
Nov.					2,996	172,500	-					
Dec.					2,118	178,250	-					
					23,255	821,750	-					
1938												
Jan.					2,331	77,500	-					
Feb.	(Prod. 3 Months)				1,214	72,800	-					
Mar.	3,483	12,400	-		1,403	100,130	-					
Apr.	1,554	12,750	-		1,094	97,500	-					
May	901	15,600	-		908	113,700	-					
June	152	2,700	-		586	90,000	-					
July	264	10,850	-		561	105,400	-					
Aug.	323	10,850	-		572	102,300	-					
Sept.	410	8,100	-		331	88,200	-		8,039	12,586	-	
Oct.	317	8,370	-		148	93,000	-					
	7,404	81,620	-		9,148	940,530	-		8,039	12,586	-	
Grand Total	7,404	81,620	-		32,403	1,762,280			8,039	12,586	-	

	ROYALITE No. 28				ROYALITE No. 29				ROYALITE No. 30			
1938	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
FEB.	4,150	8,542										
MAR.	5,524	14,038			3,431	10,725	-					
APR.	6,737	12,323			8,542	24,077	-					
MAY	9,412	24,144	.17	117.3	10,267	17,381	-					
JUNE	7,320	25,134	.17	122.1	10,394	24,081	-			8,034	-	
JULY	8,053	31,148	.18	160.2	11,716	37,679	-		16,231	16,285	-	
AUG.	8,643	36,337	.18	186.9	12,815	49,991	-		21,309	19,729	-	
SEPT.	8,556	40,334	.18	207.4	11,234	45,599	-		27,936	38,805	.17	188.5
OCT.	7,654	38,893	.25	277.8	9,333	44,459	-		22,877	26,580	.19	144.3
	66,049	230,893	-	1,071.7	77,732	253,992	-		88,353	109,433		332.8

	ROYALITE No. 31				ROYALITE No. 32				ROYALITE No. 33			
1938	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
AUG.	5,388	10,258	-		8,549	12,270	-					
SEPT.	9,364	14,348	-		16,339	23,997	-		10,025	18,488	-	
OCT.	8,438	14,003	-		13,277	23,299	-		11,453	18,887	-	
	23,190	38,609	-		38,165	59,566	-		21,478	37,375	-	

	ROYAL CANADIAN NO. 1				ROYAL CANADIAN NO. 2				ROYAL CREST			
1937	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
OCT.									3,015	14,000		
NOV.									6,297	21,948		
DEC.	10,509	13,860							6,728	16,758		
	10,509	13,860							16,040	52,706		
1938												
JAN.	9,200	8,309							5,715	12,218		
FEB.	13,613	15,696							7,245	17,831		
MAR.	10,319	6,552							6,880	27,300		
APR.	10,170	8,942	.14	35.8					6,730	28,341		
MAY	15,600	16,694	.14	66.8					7,712	23,934		
JUNE	12,986	13,733	.14	54.9					6,137	20,079		
JULY	14,704	20,337	.17	98.8					6,795	22,910		
AUG.	13,434	21,559	.17	104.7					7,873	37,329		
SEPT.	16,413	36,723							10,637	57,007		
OCT.	13,816	25,874	.22	162.6	6,179	7,000			8,568	34,010		
	130,255	174,419		523.6	6,179	7,000			74,292	280,959		
	140,764	188,279		523.6	6,179	7,000			90,332	333,665		

	SHARE No. L				SOVEREIGN No. 1				SPY HILL			
YEAR 1937	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
JAN.					1,977	300,072	.2275	1,950.5				
FEB.					1,651	244,275	.2278	1,589.9				
MAR.					1,617	228,193	.2001	1,304.6				
APRIL					1,394	273,640	.2336	1,826.4				
MAY					1,259	264,892	.3112	2,355.3				
JUNE					982	204,890	.3078	1,801.9				
JULY					1,372	309,862	.3347	2,963.2				
AUG.					1,381	398,218	.3387	3,853.6				
SEPT.					1,120	359,705	.3542	3,640.2				
OCT.	10,177	77,500	-		1,032	352,334	.3649	3,673.3				
NOV.	6,532	48,000	-		962	322,353	.3232	2,976.7				
DEC.	9,185	49,000	-		1,114	302,923	.3276	2,835.4				
	25,894	174,500	-		15,861	3,561,357		30,771.				
1938												
JAN.	10,082	43,400	-		1,451	298,121	.3345	2,849.2				
FEB.	5,027	6,486	-		1,470	300,672	.3029	2,602.1	46	560	-	
MAR.	6,674	9,963	-		1,730	318,352	.3349	3,046.2	154	925	-	
APR.	5,670	10,127	-		1,571	271,191	.2721	2,108.3	2,269	5,324	-	
MAY	8,560	24,138	-		1,458	263,155	.3533	2,656.4	4,129	12,373	-	
JUNE	6,623	19,506	-		1,656	255,407	.3648	2,662.1	4,146	13,730	-	
JULY	6,150	16,679	-		1,951	310,191	.3387	3,001.8	3,303	13,485	-	
AUG.	5,578	15,589	-		1,630	287,266	.4055	3,328.2	2,856	9,070	-	
SEPT.	4,669	13,084	-		1,462	276,106	.3832	3,023	2,352	8,759	-	
OCT.	4,516	12,975	-		714	136,500	.3885	1,515.1	1,978	7,690	-	
	63,549	171,947	-		15,093	2,716,961		26,792.4	21,233	71,916	-	
1936 NOV.					828	120,000	-					
DEC.					1,689	205,620	.2084	1,224.3				
					2,517	325,620		1,224.3				
GRAND TOTAL	89,443	346,447			33,471	6,603,938		58,787.7	21,233	71,916		

	STERLING PACIFIC No. 3				STERLING PACIFIC No. 4				STERLING PACIFIC No. 5			
YEAR 1937	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS.	G.P.M.	BBLS. NATURAL GASOLINE
JAN.	2,969	37,770										
FEB.	2,789	44,640										
MAR.	2,918	53,280			12,135	36,420						
APR.	2,297	41,640			30,041	101,570						
MAY	5,234	62,960			29,363	91,490						
JUNE	5,666	102,810			33,948	105,360						
JULY	3,456	102,100	.39	1,137.7	43,259	153,460						
AUG.	5,123	109,540	.39	1,220.6	37,816	126,100	.33	1,188.9	39,276	200,030		
SEPT.	3,109	104,620	.39	1,165.8	34,774	125,180	.33	1,180.3	37,238	183,160	.30	1,569.9
OCT.	2,957	102,630	.43	1,231.6	31,648	72.570	.26	539.1	32,791	136,200	.18	700.5
NOV.	1,678	54,650	.42)	452.8	18,109	38,090	.26	174.1	17,915	49,710	.14	198.8
			.16)				.16					
DEC.	3,810	57,560	.16	263.1	20,769	40,640	.16	185.8	17,372	42,610	.14	170.4
	42,006	874,200		5,471.6	291,862	890,880		3,268.2	144,592	611.710		2,639.6
1938												
JAN.	947	10,530	.27	81.2	21,821	53,430	.17	259.5	22,778	106,013	.14	424.1
FEB.	3,528	62,247	.27	480.2	24,189	69,108	.17	335.7	17,932	113,170	.14	452.7
MAR.	3,947	74,220	.27	572.6	25,757	109,426	.17	531.4	21,465	132,124	.14	528.5
APR.	3,198	68,690	.20	392.5	21,162	119,740	.18	615.8	16,979	72,250	.15	309.6
MAY	3,965	69,391	.20	396.5	14,975	77,958	.18	400.9	16,984	101,922	.15	436.8
JUNE	3,266	65,576	.20	374.7	9,161	45,638	.18	234.7	13,028	44,474	.15	190.6
JULY	3,527	70,354	.22	442.2	10,209	45,363	.17	220.3	14,645	67,183	.15	287.9
AUG.	3,376	74,379	.22	467.5	13,386	47,662	.17	231.5	17,798	90,294	.15	387
SEPT.	3,144	78,439	.22	493	15,252	57,710	.17	280.3	15,475	89.251	.15	382.4
OCT.	2,506	74,246	.30	636.4	8,866	44,445	.21	266.7	9,070	22,307	.16	102
	31,404	648,072		4,336.8	164,778	670,480		3,376.8	166,154	838,988		3,501.6
GRAND TOTAL	73,410	1,522,272		9,808.4	456,640	1,561,360		6,645.0	310,746	1,450,698		6,141.2

	STERLING PACIFIC No. 6				SUNBURST				SUNDANCE			
1937	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
NOV.	14,170	59,170	.14	236.7								
DEC.	29,039	108,100	.15	463.3								
	43,209	167,270		700.								
1938												
JAN.	35,234	192,600	.23	1,265.7								
FEB.	20,260	122,980	.23	808.2								
MAR.	31,358	193,772	.23	1,273.3								
APR.	22,789	192,995	.20	1,102.8	12,784	55,500	-					
MAY	14,972	86,683	.20	495.3	11,864	35,650	-		5,894	7,005	-	
JUNE	18,894	11,484	.20	65.6	9,513	39,000	-		6,338	9,183	-	
JULY	10,211	29,266	.16	133.8	8,776	45,880	-		30,375	45,095	-	
AUG.	11,876	50,764	.16	232.	7,393	38,000	-		43,295	93,696	-	
SEPT.	13,627	72,530	.16	331.6	6,242	37,500	-		47,993	130,981	-	
OCT.	8,102	28,337	.16	129.5	6,482	37,500	-		23,374	59,084	-	
	187,323	981,411		5,837.8	63,054	289,030	-		157,269	345,044	-	
GRAND TOTAL	230,532	1,148,681		6,537.8	63,054	289,030	-		157,269	345,044	-	

	SUNSET No. 1				SUNSET No. 2				THREE POINT			
YEAR 1937	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
NOV.									6,454	36,037		
DEC.	7,029	6,820							4,400	19,740		
	7,029	6,820							10,854	55,777		
1938												
JAN.	15,129	9,900							5,965	15,091	.1141	49.2
FEB.	19,605	12,000							6,371	16,105	.1372	63.1
MAR.	23,419	20,136							5,490	14,970	.1111	47.5
APR.	17,584	13,133							5,264	14,701	.1255	52.7
MAY	22,263	15,541							4,559	24,242	.1774	122.9
JUNE	17,712	12,980							2,368	11,931	.1774	60.5
JULY	19,945	18,817							3,454	27,671	.1536	121.4
AUG.	23,193	28,164							4,650	36,680	.1871	196.1
SEPT.	34,420	31,870			9,671	31,870			4,901	54,776	.1837	287.5
OCT.	22,428	28,885			21,864	19,625			3,185	28,358	.1882	152.5
	215,698	191,426			31,535	51,495			46,207	244,525		1,153.4
GRAND TOTAL	222,727	198,246			31,535	51,495			57,061	300,302		1,153.4

	TURNER VALLEY ROYALTIES				UNITED NO. 5				VULCAN-BROWN NO. 1			
1936	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
JUNE	11,947	31,000										
JULY	25,693	67,158										
AUG.	25,328	57,788										
SEPT.	23,959	44,283										
OCT.	23,522	63,550										
NOV.	21,768	60,518										
DEC.	21,047	58,886										
	153,264	383,183										
1937												
JAN.	20,762	58,471										
FEB.	17,738	51,041										
MAR.	18,724	53,362										
APR.	17,604	48,809										
MAY	17,202	59,049										
JUNE	29,088	122,220										
JULY	37,286	224,282										
AUG.	29,618	181,350										
SEPT.	21,486	149,635										
OCT.	14,877	114,638										
NOV.	10,682	42,117										
DEC.	9,428	48,378										
	244,495	1,153,352										
1938												
JAN.	12,155	53,015										
FEB.	15,259	92,641										
MAR.	15,490	107,996										
APR.	12,414	111,934										
MAY	8,862	69,811										
JUNE	4,288	25,742			4,439	4,697			16,437	29,077		
JULY	5,505	30,745			10,860	5,349			36,345	56,660		
AUG.	9,049	66,331			16,387	15,634			45,467	95,894		
SEPT.	5,970	46,713	.1299	173.4	21,353	43,100			45,526	109,020		
OCT.	3,344	19,248	.2117	116.4	17,166	33,057			19,624	44,050		
	92,336	624,176		289.8								
TOTAL	490,095	2,160,711		289.8	70,205	101,837			163,399	334,701		

	WEST FLANK NO. 1				WEST FLANK NO. 2				WEST FLANK NO. 3			
1937	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS.	G. P. M.	BBLS. NATURAL GASOLINE
DEC.	5,040	9,300							1,764	13,775		
1938												
JAN.	5,645	15,189			7,936	6,413			4,077	19,604		
FEB.					5,127	3,772			3,545	39,180		
MAR.	1,668	6,480			7,423	12,680			5,680	17,964		
APRIL	5,588	19,517			7,405	26,412			4,778	12,813		
MAY	6,521	23,673			10,771	42,333			4,526	22,909		
JUNE	4,275	15,431			8,039	34,323			3,202	16,619		
JULY	3,932	13,498			9,561	43,101			5,994	38,013		
AUG.	4,496	20,008			10,039	57,217			5,945	37,323		
SEPT.	3,947	23,009			8,989	76,915			7,104	61,204		
OCT.	3,767	21,840			6,903	52,900			6,908	58,782		
	39,839	158,645			82,193	356,066			51,759	324,411		
GRAND TOTAL	44,879	167,945			82,193	356,066			53,523	338,186		

	WEST SIDE				WEST TURNER NO. 1				WEST TURNER NO. 2			
1937	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE
MAR.	5,714	64,775										
APR.	6,046	79,600										
MAY	6,750	77,276	.3053	674.1								
JUNE	10,505	169,725	.1991	965.5								
JULY	14,067	264,275	.3133	2,365.6								
AUG.	13,184	238,850	.3506	2,392.6								
SEPT.	9,779	165,172	.2417	1,140.6								
OCT.	8,298	119,793	.2775	949.8								
NOV.	4,840	48,114	.1421	195.3								
DEC.	5,799	71,202	.1543	313.9								
	84,982	1,298,782		8,997.4								
1938												
JAN.	5,268	20,931	.1624	97.1								
FEB.	6,253	27,708	.1542	122.1								
MAR.	7,009	48,169	.1523	209.6								
APR.	6,613	47,996	.1726	236.7	4,071	8,681						
MAY	8,721	77,521	.1514	335.3	25,707	35,074						
JUNE	6,911	61,851	.1581	279.4	24,138	42,981	.18	221.				
JULY	7,566	81,156	.2125	492.7	26,627	59,039	.17	286.8	4,390	13,730		
AUG.	9,246	140,575	.2543	1,021.4	31,695	86,732	.17	421.3	9,878	14,202	.15	60.9
SEPT.	5,646	133,262	.2201	838.	30,681	97,246	.17	472.3	22,233	44,367	.15	190.1
OCT.	2,290	47,008	.2129	285.9	16,587	67,996	.18	349.7	16,627	40,799	.26	303.1
	65,523	686,177		3,918.2	159506	397,749		1,751.1	53,128	113,098		554.1
TOTAL	150,505	1,984,959		12,915.6								

YORK OILS NO. 1

Year	Bbls. Crude Oil	M.C.F. Natural Gas	G.P.M.	Bbls. Natural Gasoline
1938				
Sept.	27,160	39,051		
Oct.	24,593	33,073		
	51,753	72,124		

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BOTTOM HOLE PRESSURE

STATEMENT NO. 2

Well	Nov./37	Dec./37	Jan./38	Feb./38	Mar./38	Apr./38	May /38	June/38	July/38	Aug./38	Sept./38	Oct./38	Nov./38	Dec.
Anglo-Canadian 1													1585(26¾)	
Advance 5-A				670(25½)		(695(25½)) (666(24½))	615	605	575	540(25½)		520	640(24½)	
Barsac 1										1425			1223(24)	
Brown 1													1558(24)	
Brown 2			2165(46)							1690			562(24)	
Brown 4										1530(24¼)				
Commoil 1										1605				
2										(2445(24½)) (2510(48)) (2535(72))		1580		
Coronation 1												1230(25½)	1745(24¼)	
Consolidated												2470		
Davies Pete 1								1950		1740(25¼)				
Davies Pete 2	1770(25)		1530(28)	1655(24½)	1625(26½)	1565	1530(24¼)	1505		(1405(24¼)) (1230)	1145	1140	1180(24½)	
Firestone Roy. 1										1485(25)		1265	1495(24½)	
Foundation 1										875(24½)		975(26)	1020(24)	
Four Star 1			1120(5D)											
Frontier 1										1770(24¼)		1550(24¼)	1675(24¾)	
Monarch Roy. 1							1750(81)			1540(25¼)		1225(25)	1340(24)	
Mercury Roy. 1													862(24)	
National 1													745(24¾)	
National 2											1130(24)		1049(24)	
Prairie Roy, 1				2225(25)						1445		1545	1690(30)	
Richwell 1												1500	900(24)	
Royalite 28					(1605(24½)) (2015(8D)) (2075(17D))	1875	1610	1580	1480	1365		1220	1300(24)	
Royalite 29						1545		1670(24½)	1595			1555	1630(24¾)	
Royalite 30								(2490) (2660(90))	2505(26)	2220(24¼)		1900		
Royalite 31											1590		1205	
Royalite 32											1640(24¼)		1410(24)	
Royalite 33												1240	1550(24¼)	
Royalite 34														
Royal Canadian 1		1835(26)	2380(8D)	(1455(26)) (2250(8D))		(2065(25½)) (2080(24½))	1655(24¼)	(1800(24½)) (1675)	1620(24½)			1170		
Royal Canadian 2													2414(24¾)	
Royal Crest 1													1290(24½)	
Share Roy. 1										700(24½)			659(25½)	
Spy Hill 1										1385		1235(24¼)	1195(24)	
Sterling Pacific 3	925(45)	860(51)			790(24½)	730(24¾)	720	710		(685(24¾)) (650(25))		635		
Sterling " 4	950(26)	1085(60)		1000(25½)	875	770(24½)	770(24½)	820	835	825	775	790	875(27¾)	
Sterling " 5	1445		1280(26)	1120(25½)	1135(24½)	1080	1025(24½)	1075	1100	1040	1005	1075(23¾)	1115(24½)	
Sterling " 6	1420(3½D)		1400(3¼D)	1155(26)	1065(24¾)	985	1015(24½)	1095		1105(25½)	(1025(25½)) (1005)	1060(23½)	1105(24½)	
Sundance 1								2435(22¾)		2130(24½)		1675(25½)	1985(24)	
Sunburst 1								1360(24½)					1026(24½)	
Sunset 1								2245(24¾)		2060				
Sunset 2												2300(24½)		
Turner Valley Roy			870(51½)											
United Brown 5										1920				
Vulcan Brown 1										1680(26¼)				
Westflank 1										1175		1000(24¼)	1005(24¾)	
Westflank 2				1805(55)						1285		1105	1400(24)	
Westflank 3					1495(25)					1425(24¼)		1150(24¾)	1505(24)	
West Turner 1							1985	1895	1800	1650		1545	1655(25)	
West Turner 2												1765		
West Turner 3													1840(24¼)	
Westside 1			1445(14¾D)										1072(24)	
York Oils 1											2490(24½)	1985		
B. & B. 1		705(30¼)											562(24)	

STATEMENT NO. 1

AREA "A" BOTTOM HOLE PRESSURES

AREA 1,670 ACRES

WELL	DATE COMPLETED	PRESSURE IN POUNDS	OCTOBER-NOVEMBER POUNDS
MIRACLE NO. 2	1934	1,480	500
MERCURY ROYALTIES	JULY, 1938	1,300	862
ROYALITE NO. 28	MARCH, 1938	2,100	1,300
STERLING NO. 3	FEBRUARY, 1937	1,400	635
ROYAL CREST	OCTOBER, 1937	2,100	1,290
STERLING NO. 5	AUGUST, 1937	2,000	1,115
DAVIES NO. 4	OCTOBER, 1938	2,000	1,900
WEST FLANK NO. 1	DECEMBER, 1937	1,800	1,005
WEST FLANK NO. 2	FEBRUARY, 1938	2,000	1,400
WEST FLANK NO. 3	DECEMBER, 1937	2,000	1,505
STERLING NO. 4	MARCH, 1937	1,900	875
STERLING NO. 6	NOVEMBER, 1937	1,850	1,105
WEST TURNER NO. 2	AUGUST, 1938	1,865	1,765
WEST TURNER NO. 1	MAY, 1938	2,100	1,655
FOUR STAR	OCTOBER, 1937	1,500	875
TURNER VALLEY ROYALTIES	JUNE, 1936	1,500	562
GRANVILLE	OCTOBER, 1937	1,800	1,000
THREE POINT	NOVEMBER, 1937	1,300	600
B. & B.	FEBRUARY, 1937	1,500	562
RICHLAND NO. 2	FEBRUARY, 1938	1,200	600
SHARE ROYALTIES	DECEMBER, 1937	1,700	659
NATIONAL NO. 1	NOVEMBER, 1937	1,750	745
MODEL SPOONER NO. 1	SEPTEMBER, 1937	1,600	600
SUNBURST	MARCH, 1938	1,700	1,026
MODEL SPOONER NO. 2	MARCH, 1938	1,600	700
SPY HILL	FEBRUARY, 1938	1,800	1,195
DAVIES NO. 2	SEPTEMBER, 1937	2,300	1,180
BARSAC	JUNE, 1938	1,600	1,223
FOUNDATION	DECEMBER, 1936	2,200	1,020
MONARCH	JULY, 1937	2,100	1,340
BROWN OIL NO. 2	SEPTEMBER, 1937	2,400	1,650
WESTSIDE	MARCH, 1937	2,200	1,072
BROWN OIL NO. 4	APRIL, 1938	1,700	1,300
FIRESTONE	NOVEMBER, 1937	2,300	1,495
BROWN OIL NO. 1	SEPTEMBER, 1937	2,300	1,558
FRONTIER	JUNE, 1938	2,400	1,675
		66,345	39,549
	AVERAGES:	1,842.9	1,098.6

STATEMENT NO. 1

AREA "B" BOTTOM HOLE PRESSURES

AREA 1,085 ACRES

WELL	DATE COMPLETED	PRESSURE IN POUNDS	1938 NOVEMBER POUNDS
VULCAN BROWN	JUNE, 1938	2,000	1,550
ROYALITE NO. 33	SEPTEMBER, 1938	2,000	1,550
ROYALITE NO. 30	JULY, 1938	2,660	1,900
COMMOIL NO. 1	OCTOBER, 1937	2,500	1,500
COMMOIL NO. 2	AUGUST, 1938	2,100	1,580
GLOBE	JULY, 1938	2,100	1,450
ROYALITE NO. 31	AUGUST, 1938	2,100	1,550
DAVIES NO. 1	APRIL, 1938	2,200	1,600
ROYAL CANADIAN NO. 1	DECEMBER, 1937	2,500	1,170
CONSOLIDATED	OCTOBER, 1938	2,470	2,470
SUNSET NO. 1	DECEMBER, 1937	2,550	1,770
SUNSET NO. 2	SEPTEMBER, 1938	2,500	2,300
YORK	OCTOBER, 1938	2,490	1,985
UNITED BROWN	JUNE, 1938	2,100	1,690
PRAIRIE	OCTOBER, 1937	2,500	1,690
CORONATION	JULY, 1938	2,535	1,745
SUNDANCE	MAY, 1938	2,435	1,985
BROWN NO. 5	OCTOBER, 1938	2,000	1,700
RICHWELL	OCTOBER, 1938	2,000	900
ROYALITE NO. 32	AUGUST, 1938	2,500	1,410
ROYAL CANADIAN NO. 2	OCTOBER, 1938	2,414	2,414
NATIONAL NO. 2	MAY, 1938	2,500	1,049
WEST TURNER NO. 3	OCTOBER, 1938	1,900	1,840
		53,054	38,798
	AVERAGES:	2,306.7	1,686.8

AREA "A" - 1670 ACRES

STATEMENT NO. 4

WELL	Produced to Oct.31,1938		Average Gas/Oil Ratio	Bottom Hole		Pressure Drop	Factor	Volume Natural Gas Left M.C.F.	Oct. Gas/Oil Ratio	Bbls. Recoverable Crude Oil left	Bbls. Natural Gasoline Recovered	Aver. G.P.M. left	Bbls. Natural Gasoline left	Totals		
	Bbls. Crude Oil	M.C.F. Natural Gas		Orig.Press. Date of Completion	Press. Oct.or Nov.									Crude Oil	Nat. Gas	Natural Gasoline
Miracle 2	143,850	12,199,132	84.8	1933 1480	500#	980	500/980	6,224,047	121.0	51,438	40,824	.26	46,236	195,288	18,423,179	87,060
Mercury Roy.	25,229	172,919	6.9	July/38-1300	862#	438	862/438	340,311	5.7	59,704		.26	2,528	84,933	513,230	2,528
Royalite 28	66,049	230,893	3.5	Mar./38 2100	1300	800	1300/800	375,201	5.2	72,154	1,072	.26	2,787	138,203	606,094	3,859
Sterling 3	73,410	1,522,272	20.7	Feb./37 1400	635	765	635/765	1,263,585	29.6	42,689	9,808	.26	9,387	116,099	2,785,857	19,195
Royal Crest	90,332	333,665	3.7	Oct./37 2100	1290	810	1290/810	531,392	3.9	136,254		.26	3,948	226,586	865,057	3,948
Sterling 5	310,746	1,450,698	4.7	Aug./37 2000	1115	885	1115/885	1,827,716	5.8	315,123	6,141	.26	13,577	625,869	3,278,414	19,718
Davies 4	4,800	6,000	1.3	Oct./38 2000	1900	-	-	1,500,000		355,000		.26	11,143	359,800	1,506,000	11,143
Westflank 1	44,879	167,945	3.7	Dec./37 1800	1005	795	1005/795	212,308	5.8	36,605		.26	1,577	81,484	380,253	1,577
" 2	82,193	356,066	4.3	Feb./38 2000	1400	600	1400/600	830,821	7.6	109,319		.26	6,172	191,512	1,186,887	6,172
" 3	53,523	338,186	6.3	Dec./37 2000	1505	495	1505/495	1,028,222	8.5	120,967		.26	7,639	174,490	1,366,408	7,639
Sterling 4	456,640	1,561,360	3.4	Mar./37 1900	875	1025	875/1025	1,332,868	5.0	266,574	6,645	.26	9,901	723,214	2,894,228	16,546
" 6	230,532	1,148,681	5.	Nov./37 1850	1105	745	1105/745	1,703,748	5.3	321,462	6,538	.26	12,656	551,994	2,852,429	19,194
West Turner#2	53,128	113,098	2.1	Sept./38-1865	1765	-	1765/100	1,996,180		307,000	554	.26	14,830	360,128	2,109,278	15,384
" " #1	159,506	397,749	2.5	May/38 2100	1655	445	1655/445	1,479,269	4.7	314,738	1,751	.26	10,988	474,244	1,877,018	12,739
Four Star	123,322	372,040	3.	Oct./37 1500	875	625	875/625	520,856	5.7	91,378	958	.26	3,869	214,700	892,896	4,827
T.V.Roy.	490,095	2,160,711	4.4	June/36 1500	562	938	562/938	1,294,584	9.8	132,100	290	.26	9,617	622,195	3,455.295	9,907
Granville	64,358	258,577	4.	Oct./37 1800	1000	800	1000/800	323,221	6.3	51,305	496	.26	2,401	115,663	581,798	2,897
Three Point	57,061	300,302	5.3	Nov./37 1300	600	700	600/700	257,402	8.9	28,922	1,153	.26	1,912	85,983	557,704	3,065
B.& B. Roy.	290,534	3,386,688	8.2	Feb./37 1500	562	938	562/938	1,429,977	19.	75,262	11,019	.26	10,622	365,796	3,816,665	21,641
Richland #2	7,404	81,620	11.	Feb./38 1200	600	600	600/600	81,620	26.6	3,068		.26	606	10,472	163,240	606
Share Roy.	89,443	346,447	3.9	Dec./37 1700	659	1041	659/1041	219,317	2.8	78,328		.26	1,629	167,771	564,764	1,629
National #1	192,893	941,741	4.9	Nov./37 1750	745	1005	745/1005	698,101	8.3	84,109		.26	5,186	277,002	1,639,842	5,186
Model Sp.#1	118,862	2,026,880	17.1	Sept/37 1600	600	1000	600/1000	1,216,128	30.6	39,743	7,851	.26	9,034	158,605	3,243,008	16,885
Sunburst	63,054	289,030	4.6	Mar./38 1700	1026	674	1026/674	439,977	6.	73,330		.26	3,268	136,384	729,007	3,268
Model Sp.#2	119,332	421,332	3.5	Mar./38 1600	700	900	700/900	327,703	3.6	91,029	566	.26	2.435	210,361	749,035	3,001
Spy Hill	21,233	71,916	3.4	Feb./38 1800	1195	605	1195/605	142,049	3.8	37,381		.26	1,055	58,614	213,965	1,055
Davies #2	393,059	932,702	2.4	Sept/37 2300	1180	1120	1180/1120	982,670	5.5	178,667	4,094	.26	7,300	571,726	1,915,372	11,394
Barsac	55,037	200,075	3.6	June/38 1600	1223	377	1223/377	649,050	4.8	135.219		.26	4,822	190,256	849,125	4,822
Foundation	184,147	1,063,612	5.8	Dec./36 2200	1020	1180	1020/1180	919,393	12.5	73,551	905	.26	6,830	257,698	1,983,005	7,735
Monarch	152,152	558,057	3.7	July/37 2100	1340	760	1340/760	983,943	5.9	166,770		.26	7,309	318,922	1,542,000	7,309
Brown Oil #2	159,482	336,283	2.1	Sept/37 2400	1650	750	1650/750	739,823	2.9	255,111		.26	5,496	414,593	1,076,106	5,496
Westside	150,505	1,984,959	13.2	Mar./37 2200	1072	1128	1072/1128	1,886,415	20.5	92,020	12,916	.26	14,013	242,525	3,871,374	26,929
Brown Oil #4	86,911	231,403	2.7	Apr./38 1700	1300	400	1300/400	752.060	3.6	208,906	1,025	.26	5,587	295,817	983,463	6,612
Firestone	126,448	526,171	4.2	Nov./37 2300	1495	805	1495/805	977,175	7.2	135,719		.26	7,259	262,167	1,503,346	7,259
Brown Oil #1	242,119	882,320	3.6	Sept/37 2300	1558	742	1558/742	1,852,634	11.4	162,512		.26	13,762	404,631	2,734,954	13,762
Frontier	215,778	579,654	2.7	June/38 2400	1675	725	1675/725	1,339,201	2.4	558,000		.26	9,948	773,778	1,918,855	9,948
	5,198,046	36,951,184						38,678,967		5,261,457	114,606		287,329	10,459,503	75,630,151	401,935
Average per Acre-	3,112.6	22,126.5						23,161.1		3,150.6				6,263.2	45,287.5	240.7

AREA "B" (1,085 ACRES) STATEMENT No. 5

WELL	PRODUCED TO OCT. 31/38 BBLS. CRUDE OIL	M.C.F. NATURAL GAS	AVERAGE GAS/OIL RATES	PRESSURE DATE COMPLETED		NOV./38	OCT. GAS/OIL RATIOS	RECOVERED NATURAL GASOLINE
VULCAN BROWN	163,399	334,701	2.	JUNE/38	2,000	1,550	2.2	
ROYALITE 23	21,478	37,375	1.7	SEPT./38	2,000	1,550	1.6	
30	88,353	109,433	1.2	JULY/38	2,660	1,900	1.1	333
COMMOIL 1	339,799	670,426	2.	OCT./37	2,550	1,500	3.5	2,736
2	41,264	67,246	1.6	AUG./38	2,100	1,580	1.5	
GLOBE	34,779	57,194	1.6	JULY/38	2,100	1,450	2.6	
ROYALITE 31	23,190	38,609	1.6	AUG./38	2,100	1,550	1.5	
DAVIES 1	74,760	140,127	1.9	APRIL/38	2,200	1,600	2.2	
ROYAL CAN. 1	140,764	188,279	1.3	DEC./37	2,500	1,170	1.8	524
CONSOLIDATED	10,829	11,328	1.	OCT./38	2,470	2,470	1.0	
SUNSET 1	222,727	198,246	.9	DEC./37	2,550	1,770	1.2	
2	31,535	51,495	1.6	SEPT./38	2,500	2,300	.9	
YORK	51,753	72,124	1.4	OCT./38	2,490	1,985	1.3	
UNITED BROWN 5	70,205	101,837	1.5	JUNE/38	2,100	1,690	1.9	
PRAIRIE	289,325	707,789	2.4	OCT./37	2,500	1,690	3.8	
CORONATION	59,418	92,776	1.6	JULY/38	2,535	1,745	1.7	
SUNDANCE	157,269	345,044	2.2	MAY/38	2,435	1,985	2.5	
BROWN OIL 5	9,100	45,061	5.	OCT./38	2,000	1,700	5.	
RICHWELL	8,039	12,586	1.6	OCT./38	2,000	900	1.5	
ROYALITE 32	38,165	59,566	1.6	AUG./38	2,500	1,410	1.7	
ROYAL CAN. 2	6,179	7,000	1.1	OCT./38	2,414	2,414	1.1	
NATIONAL 2	33,424	55,453	1.7	MAY/38	2,500	1,049	1.2	
	1,915,754	3,403,695			51,204	36,958		3,593
AVER. PER ACRE	1,765.6	3,137.0			2,327.5	1,679.9		

STATEMENT NO. 6 -

RECORD OF PRODUCTION, HIGHWOOD-SARCEE WELL NO. 1
L.S.D. 16, Section 21-18-2. W. 5th

Date 1934	Gas Production at Well	Gross Oil Production Barrels	Absorption Gasoline at Plant-Barrels	G.P.M.	Working Pressures		
					Well	(Original C.P.1620#)	Separator
July	203,181	6,157				C.P.1605#	
August	424,512	12,864					
Sept.	376,414	11,071					
Oct.	322,154	9,568	Oct.22	.05	1320-1260		250
Nov.	315,733	8,843			1260		250
Dec.	311,644	9,194			1260		240
	1,953,638	57,697					
1935					1260-1200		300-250
Jan.	303,464	8,770			1200-1000		325-250
Feb.	363,305	7,102			1120-1000		275
March	383,568	6,727			1120		250
April	331,810	6,328			1120-1100		250
May	334,035	5,523			1100		250
June	330,860	4,916			1100		250
July	332,220	4,482	1138	.1249	1100-1050	C.P.1360#	250
August	311,100	4,273	1112	.1320	1050		250
Sept.	294,791	3,806	1080	.1350	1050		250
Oct.	279,951	4,062	1402	.1720	1050		250
Nov.	285,199	3,734	1337	.1554	1050		250-240
Dec.	301,154	3,663					
	3,851,457	63,386	6,069				
1936							
Jan.	286,729	3,279	1,273	.1554			
Feb.	262,010	3,171	1,193	.1600	1050-1000		250-200
Mar.	270,611	2,805	1,385	.1791	1000		250-200
April	250,591	2,603	1,248	.1743	1000		250-220
May	257,389	2,283	1,265	.1720	950- 900		250-220
June	240,288	2,121	1,047	.1525	900		250-
July	254,126	2,043	1,262	.1738	900		250-220
Aug.	259,416	1,947	1,277	.1722	900- 800		300-240
Sept.	228,915	1,876	1,471	.2250	800- 750		300-280
Oct.	230,552	2,115	1,626	.2470	750- 700		300-280
Nov.	210,000	1,833	1,567	.2611	750- 700		300-280
Dec.	224,119	2,023	1,450	.2309	725		
	2,974,746	28,099	16,064				
1937							
Jan.	225,031	1,519	1,625	.2527			
Feb.	213,278	1,384	1,644	.2698			
March	237,177	1,414	1,960	.2930	550- 500		290-300
April	216,362	1,170	1,832	.2963	475- 500		240-250
May	212,584	985 Dal.	1,793	.2952	475- 450		250-350
June	242,804	2,873(Perf.)	2,277	.3282	475- 450	C.P.760#	225-330
July	217,622	1,221	1,490	.2400	450- 350		210-180
August	184,486	748	1,702	.3229	400- 350		250-160
Sept.	144,833	646	1,454	.3514	400- 360		185-175
Oct.	129,490	616	1,136	,3070	350- 305		180-175
Nov.	121,846	598	974	.2800	350- 300		175
Dec.	162,324	816	1,834	.3954	340- 225		175
	2,307,837	13,990	19,721				

RECORD OF PRODUCTION, HIGHWOOD-SARCEE WELL NO. 1

DATE 1938	GAS PRODUCTION AT WELL	GROSS OIL PRODUCTION BARRELS	ABSORPTION GASOLINE AT PLANT-BARRELS	G.P.M.	WORKING PRESSURES	
					WELL	SEPARATOR
JAN.	164,390	611	1,616	.3440	250-190	175
FEB.	145,610	541	1,492	.3586	200	175
MARDH	167,651	576	1,936	.4042	200	175
APRIL	124,559	396	1,327	.3648	200	175
MAY	106,702	375	1,212	.3975	200	175
JUNE	94,965	266	904	.3333	200	C.P.495# 175
JULY	111,615	322 DAL.CRUDE	1,595	.5000	200	175
AUGUST	110,077	31) C. 183)	1,417	.4487	200	175
SEPT.	106,325	179 C.	1,416	.4661	200	175
OCT.	88,479	169 C.	1,086	.4296	200	155
	1,220,373	3,649	14,001			
GRAND TOTAL	12,308,051	166,821	55,855			

NOTE:-

"C" - CRUDE (OTHERWISE NAPHTHA)

RECOVERY @ 50 BBLS.
PER MILLION 36.1%.

	NATIONAL #1				NATIONAL #2				PRAIRIE			
1937	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NATURAL GAS	G.P.M.	BBLS. NATURAL GASOLINE	BBLS. CRUDE OIL	M.C.F. NAT. GAS	G.P.M.	BBLS. NATURAL GASOLINE
OCT.									8,356	23,400	-	
NOV.									23,863	42,000	-	
DEC.	27,312	126,900	-						22,459	48,200	-	
	27,312	126,900							54,678	113,600		
1938												
JAN.	8,101	26,500	-						24,554	37,588	-	
FEB.	9,838	33,424	-						15,989	24,288	-	
MAR.	13,752	46,699	-						18,872	21,731	-	
APR.	19,183	69,049	-						18,168	30,053	-	
MAY	23,934	81,745	-		718	4,240	-		33,963	80,453	-	
JUNE	20,632	68,619	-		6,598	15,916	-		26,929	61,966	-	
JULY	23,702	110,357	-		5,473	8,218	-		31,881	99,187	-	
AUG.	18,204	140,758	-		6,809	9,743	-		31,774	106,054	-	
SEPT.	14,536	123,750	-		6,962	8,820	-		22,066	93,107	-	
OCT.	13,699	113,940	-		6,864	8,516	-		10,451	39,762	-	
	165,581	814,841	-		33,424	55,453	-		234,647	594,189	-	
GRAND TOTAL	192,893	941,741	-		33,424	55,453	-		289,325	707,789	-	

Exhibit 20

Report prepared by the witness, Stanley J. Davies,- to be used on behalf of the City of Calgary, before the Gas Enquiry held in Calgary in May,1931, the report being as follows:

NATURAL GAS RESERVES OF THE TURNER VALLEY GAS FIELD

Prepared by

STANLEY J. DAVIES, A.R.S.M., F.G.S.

FOR

THE CITY OF CALGARY

The following report has been prepared for the City of Calgary.

For the sake of clearness I have divided the report into a number of charts and tables.

1. A map of the Turner Valley area showing the location of the field, the area of the field, the area that has been proven to be productive by wells which have drilled into the limestone, the eastern limit of the producing area, the western limit (probably only) of the producing area, the wells (tabulated) that are producing at this date, together with their depths, and finally the probable area of extension of the present field.

2. Charts showing the production of the field of naphtha since the beginning of development. These charts show production by months from September, 1925, and the individual well production in so far as can be determined by the records.

3. Chart showing the summary of all information pertinent to this investigation, wells, date completed, initial gas production, initial oil gas ratio, present gas production, present oil gas ratio, total naphtha production by wells, total gas production by wells and average oil

Exhibit 20.

gas ratio. With reference to the initial gas production, present gas production.

and the average oil gas ratio, I have had to depend upon information secured largely by myself over a period of years as I find it is only during recent months that accurate records of the actual flow of natural gas has been kept. Previous to September, 1930, I find very few records of daily gas flow and the general practice seemed to be to take one measurement a month and let it go at that. With the independent companies many records are incomplete and wells are grouped together in many instances. I have therefore gathered all the information that I have access to, and placed it in a composite form in the chart No. 3.

4. Graphs have been prepared showing the behaviour of type wells from the time of commencement, through the normal life, andinto old age. The variations of the graphs are due to a number of factors, among which I would like to mention inaccurate records, shooting of the well, and as a result a change in both gas flow and in the naphtha production,and frequently in the oilgas ratio, back pressure, incomplete records of the time wells have been frozen off, and the results of deepening wells and redrilling of wells.

5. Statement showing the average production of gas per month and the method of arriving at the average production of gas per barrel. Five wells have been taken as an example, located in the extreme north end, the center, the Home section, and two wells in the southern end of the field.

6. Statement of the average cost of a number of wells in the field, and present posted price for naphtha.

As a result of the detailed study of the data which has been prepared, I have arrived at certain fundamental facts and from these facts I have prepared the

Exhibit 20

following conclusion which is I believe a fair summary of the facts of the case and the estimates of the future are based on performance of the past in as great a degree as possible.

Conclusion

The first fact that is of the utmost importance is the accuracy of the data in this report.

There is this much to be said in this connection - the production figures represent the amounts sold each month, and may vary from actual production by a few barrels, plus or minus, each month. In the total, however, the figures given are correct, as the total produced was finally all sold.

During January, February and March of 1931, some production was sold by the smaller companies direct to farmers. I have endeavored to secure information as to the amount and correct the published figures in this regard.

The greatest difficulty has been in connection with figures of natural gas production.

In the first place only actual meter records could give the actual flow of natural gas. I do not know of any well which has been continuously metered since it was brought in. I was therefore forced to fall back on the measurement of open flow. In nearly all instances the original open flow has been published either in the press or in the annual statements of the companies.

During the past six months the Government has been measuring the surplus gas flow every month at least, and the figures given to various independent companies have been available in part for estimate purposes.

Exhibit 20

The records of the Royalite Company were not available, and the gas flow of the wells of this Company were estimated.

The records of some of the various companies operated by the Imperial Oil Company were used in the compiling of this report. For obvious reasons such records cannot be included in total in this report.

A great deal of information regarding gas flow has been secured by personal contact with the various wells. The writer has either been at the well and secured information as to gas flow, or has been informed by the operators as to gas flow at various dates. This collection of information over a period of years has been invaluable in arriving at the conclusions presented herewith.
From my personal knowledge, I might say that complete records of gas flow do not exist, and that the history of Turner Valley wells is obscure in regards to actual detailed figures on the majority of the wells.

Wells vary in gas flow from day to day and from week to week, and only a meter reading could be considered a complete record.

I have endeavored to be conservative in all estimates, and where actual measurements are available as a check it will I believe be found that I have underestimated rather than overestimated the gas flow and the gas production.

I find that back pressure of up to 350 lbs. has been applied since the early days of Turner Valley, and in September 1930 it became general practice to place high back pressure on the wells. This has had a tendency to restrict the actual flow of natural gas, and has therefore made it difficult to calculate the gas production by using the open flow time method.

Exhibit 20

The volume-pressure method of measuring reserves in Turner Valley cannot be used as the irregular porosity of the limestone plus the faulted condition of the structure make it entirely out of the question for any estimate of colume of the container, or of its porosity, to be made.

I have examined many samples from the limestone in Turner Valley, and find that no two logs are ever exactly the same as to the porosity of the limestone. Many wells are in addition affected by fracturing of the limestone, and this cause makes the problem of calculation of volume quite impossible.

I therefore have used the cubic foot per barrel method, having accurate figures of naphtha production and many estimates of gas production to check the figures used in oil-gas ratios.

I find that Turner Valley has produced in actual fact over 100 million cubic feet per acre. The Home Oil area in section 20, township 19, range 2, has produced over 60 billion feet to date, and there is less than 600 acres of this section on structure, and the wells still continue to produce a large volume of natural gas.

The rock pressure in this area is still over 1,000 lbs per square inch, and salt water has not shown up in volume, although 100 million cubic feet per acre has been extracted from this area.

The 1200 acres shown on the plan including parts of sections 7, section 12, section 6, section 1, section 13, and of section 18, Township 20, Ranges 2 and 3, has in fact produced over 65 million cubic feet per acre. 78.44 billions have already been produced and there appears to be sill a large volume in the ground.

Exhibit 20

The rock pressure of this area was very high in 1924. It was believed to be over 2500 lbs. per square inch. To-day it is round 1250 lbs. per square inch, so that there is still a large volume of natural gas in the ground. Salt water in small amounts is present in several wells, but does not appear to be increasing in any volume. In fact, there is no evidence as yet to show that Turner Valley gas pressure is due to Hydrostatic head of salt water.

In fact wells have declined in gas pressure and been practically exhausted without any appreciable change as to salt water encroachment.

Up to the present time there is no evidence to show that the older part of Turner Valley will be flooded out by salt water, even in its present partially drained condition. There is therefore nothing to fear in undrained areas of Turner Valley from salt water.

Now as to gas reserves, we have shown that the area of the field is according to plan 10,000 acres, the production of gas is at least 80 million cubic feet per acre and probably 100 million cubic feet per acre on the average. This means a total of from 800 billion to 1000 billion cubic feet in the area of which 234 billion have been produced.

The amount left in the field therefore amounts to a minimum of 566 billion cubic feet, and may be 766 billion or over.

The present rate of production is, we have shown, a potential 438 million cubic feet per day, with all wells producing.

The Government have passed an Act to restrict production to 40% of open flow, which would restrict Turner Valley to some 300 million cubic feet per day, allowing for present

Exhibit 20

back pressure on wells. This amount of production over a year amounts to 110 billion cubic feet.

If there be a minimum of 566 billion cubic feet in the field, we have to consider means of getting the gas out of the ground. The present wells cannot do it, as they are now, and will continue to drain, their local areas. Therefore production must decline from 110 billions a year as the present wells get older and as Royalite 4, Illinois Alberta, several McLeod wells, Vulcan, etc, practically ceased in 6 years we can look for the present wells to be very much reduced in production in six years time.

In order to be fair, I have estimated that at the end of six years present wells would be capable of producing 10 billions per year. This would be an average for six years of 60 billion cubic feet, or a total of 360 billion cubic feet.

We have seen that there is a probable minimum total of 800 billion cubic feet in the area. We therefore have at the end of six years a minimum of at least 206 billion cubic feet left.

It will be apparent that the real question of conservation will depend upon the rate at which new wells are being drilled now and in the future.

Without drilling further wells, Turner Valley will last over 15 years, and the percentage of conservation will affect even this lifetime. This has been based on a 40% of open flow basis.

At the present time drilling of new wells has practically ceased in Turner Valley, for two reasons; first the cost of the wells due to their depth, and second, naphtha product-

Exhibit 20

ion is the main source of revenue, and the price has declined to a record low price.

The following areas are undeveloped: Section 25, Township 20, Range 3; Section 14, Township 20, Range 3; Section 30, Township 19, Range 2, has one well. Section 29, Township 19, Range 2 has one well. Section 19, Township 19, Range 2 has one well. Section 8, Township 19, Range 2 has one well. Section 33, Rownship 18, Range 2, has one well. Section 28, Township 18, Range 2 has no well at present.

There is a great deal of undeveloped land even in the older part of the field. Section 6, Township 20, Range 2, has two wells, but both are in one corner. Section 31, has four wells, but one in each corner, and two close together in the center. Section 9, Township 19, Range 2, is also only partially developed.

It has been conclusively shown that the Turner Valley gas is becoming leaner or drier.

It has been shown in Chart No. 5 and in the graphs of Chart No. 4 that the older a well gets the drier the gas becomes, until the point is reached where the well becomes a gas well, with an incidental small naphtha production.

This fact will, I believe, make it difficult to finance new wells, and will make it easier to conserve gas because of cessation of drilling, and also because the present wells will soon not pay for cost of operation, and can be shut in until a market is found for the gas.

I have every confidence in asserting that with conservation of drilling, and of gas flow, to 40% of open flow, that I am of the opinion that Turner Valley will be producing sufficient gas to supply Calgary for the next fifteen years.

Stanley J. Davies

Exhibit 20

CHART NO. 6

COST OF DRILLING 10 TYPICAL WELLS IN TURNER VALLEY

NAME	DEPTH	COST
McLeod No. 5	5186	$139,000.00
Mercury No. 1	5275	$167,384.42
Mercury No. 2	5128	$195,246.04
Mercury No. 3	5372	$195,654.57
Home No. 1	5280	$176,123.68
Home No. 2.	5507	$198,824.52
Home No. 3	5127	$162,919.58
Home No. 4	5584	$178,042.35
Home No. 5	4898	$166,959.88

POSTED PRICES PAID BY IMPERIAL OIL LIMITED

The following prices effective as of February 12th, 1931.

CLEAR NAPHTHA	$3.19 per Barrel
Discolored NAPHTHA	$2.95 " "
CRUDE OIL 50 degrees A.P.I. GRAVITY AND HIGHER	$2.71 " "
CRUDE OIL 45 to 50 degrees A.P.I. GRAVITY	$2.12 " "

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NATURAL GAS RESERVES OF THE TURNER VALLEY GAS FIELD

PREPARED BY

STANLEY J. DAVIES, A.R.S.M., F.G.S.

for

THE CITY OF CALGARY

1. Q. What is the area of Turner Valley?

A. Ten thousand acres.

2. Q. Do you mean surface area?

A. Yes.

3. Q. How do you arrive at this area of ten thousand acres?

A. I have calculated the area between the producing wells and have extended that area to cover the furthest north well and the furthest south well. I have limited the eastern boundary with the producing wells on the eastern side of the structure. The western boundary I have arrived at by geological interpretation of the results secured in wells drilled on the western side of the structure.

4. Q. Will the area of Turner Valley ever in your opinion be increased?

A. Yes. I believe that Turner Valley will be extended to the south some distance, and to the west until wells become too deep for the revenue received from them (this is a question of adequate return on the cost of the wells). There is a possibility of the area being extended to the north west also.

5. Q. With the irregular area you describe how do you arrive at the acreage of ten thousand acres?

A. The map I have here outlines the area of Turner Valley and the area has been taken off with a planimeter

C-11

Exhibit 20

(an instrument for measuring the area of irregular shaped areas of land)

6. Q. Has the area of Turner Valley anything to do with the gas reserves?

A. Yes. Without the area no calculation of gas reserves is at all possible.

7. Q. Is it possible to use the usual formulae in estimating the gas reserves of the area?

A. No. The porosity of the limestone in Turner Valley is irregular and for this reason it is impossible to arrive at the volume of the reservoir.

8. Q. How do you know that the porosity of the limestone is irregular?

A. In several instances two wells have been drilled within 400 feet of each other on the surface, and after entering the limestone the results have been very different. Recently two such wells have been tested for rock pressure. One well was a large well producing 300 barrels a day for several months. The second well was a small well the production from which rapidly dropped from 70 barrels a day to 15 barrels a day. The large well was shut in, and showed a rock pressure of 1660 pounds per square inch. The small well located 400 feet away was not shut in. No increase was found in the gas flow from the small well during the time the larger well was closed in.

9. Q. How do you account for this?

A. In my opinion the small well is draining a very small area and is not connected in any was with the drainage area of the large well.

Exhibit 20

There are two reasons for this statement. (1) The small well exhausted its drainage area very rapidly. (2) It also showed no increase in gas flow when the neighboring well was shut in.

10. Q. Have crooked holes any bearing on this?

A. Yes. The bottom of the holes may be much further than 400 feet apart.

11. Q. Has the method of drilling any relation to the results obtained in these two wells?

A. Yes. Formations may be mudded off and as a result only part of the production from a well may be secured, one porous strata may be completely filled with mud around the bottom of the hole and so sealed off as far as that particular well is concerned. Crooked holes also may mean that the two wells were not of equal penetration into the limestone, and one of the wells may not be deep enough.

12. Q. Knowing all these additional factors do you still think that the limestone in Turner Valley has irregular porosity?

A. Yes. I have examined the limestone samples from several wells and no two logs are ever exactly the same.

13. Q. Do the wells in Turner Valley drain a very large area?

A. Yes. All the wells which have secured large production have drained a large area.

14. What evidence have you for this?

A. I have examined the production record of wells one half a mile apart and I find that there is a close

Exhibit 20

relation between the results.

15. Q. What do you mean by close relation of results?

A. Assuming that No. 1 well started with a production of 600 barrels a day and produced for one year, No. 2 well started a year after No. 1 well, the production from No. 1 well had in the meantime dropped to 300 barrels per day, No. 2 well started off with an initial production of 300 barrels per day instead of the initial production of 600 barrels as in the case of the No. 1 well.

16. Q. What additional evidence have you?

A. Every time wells which are too close to each other are affected by freezing off there has been an increase in the production from the adjoining well that did not freeze off.

17. Q. In view of the irregular porosity of the limestone which you have described, how do you arrive at the gas reserves of the Turner Valley?

A. I calculated from all the sources available the production of gas from a known area, and made an estimate of the gas remaining in the ground at present. This estimate being based on the relation of the present rock pressure to the original rock pressure.

18. Q. Give in detail the calculations on which you based your estimate.

A. I have outlined an area of 1200 acres. This includes the oldest portion of the Turner Valley, for the reason that I desire the record of production to cover as long a period of time as possible. Some of the data is not complete owing to incomplete records,

but in general the facts are accurate and clear.

the old wells of the Royalite Company, Nos. 1,2, and 3, are included in the 1200 acres and I have outlined the area on the attached plan. These old wells produced and sold up to the end of 1930 some 4 billion feet from horizons above the dolomitic limestone. Royalite No. 4 produced from the limestone for a period of five years with practically no serious interruption. I have set the average daily production at fifteen million cubic feet per day. The production of Royalite No. 4 up to the end of 1930 would therefore amount to 27.23 billion cubic feet.

McLeod Oil Company wells have been producing gas since 1926, butin an intermitant manner. In March 1929 McLeod No. 4 commenced to produce from the limestone. The rate of production was twenty million cubic feet per day. This production has continued at a gradually diminishing rate. The amount between present production of ten million feet and twenty million feet being made up in part by the production from other wells. No. 5 well has during recent months commenced producing twelve million feet per day.

I have therefore calculated the production from the McLeod property at an average of 12.5 million feet per day over a period of 1,000 days, or a total of 12.5 billion cubic feet.

Royalite No. 17 well is within the acreage which I have selected. This well was completed in January 1929 and has produced with very little interruption since

Exhibit 20

that date.

The original production of natural gas was in the neighborhood of fifteen million feet a day. Due to the time this well has been frozen off and the natural decline and back pressure, I have placed the production at the average figure of 9.2 million feet per day for the period of 800 days. This gives a total production of 7.32 billion feet. I have included in the area in question Royalite wells Nos. 14, 15, and 16, all of which have been small producers of natural gas. The total production from these wells has not been a large amount. I have estimated these wells at one billion cubic feet.

The No. 2 well of the British Dominion Company has been producing since December 1929 at an average rate of 6.2 million cubic feet per day. Taking the total time at 480 days this gives a total gas production of 2.98 billion cubic feet.

The new McDougal Segur Oil Company has had a production of seven million cubic feet for a period of approximately 2 years, since May, 1929. The flow of the No. 2 well has decreased, but the No. 3 well has since been completed and the gas production has been maintained at a figure close to seven million cubic feet per day. I have therefore placed the gas production at 5.21 billion cubic feet.

Exhibit 20

The Illinois Alberta No. 1 well was completed in the year 1926, and this well produced continuously for a period of three years from the limestone without considering the gas which was secured from higher formations in the years from 1915 on. I have taken the production from this well at 3.9 million feet per day for a period of 1150 days, giving a total of 4.51 billion cubic feet. Royalite No. 7 well was completed in 1927 and produced for over 2 years, having a production of 5 million cubic feet per day. Production has for the past two years been intermittent. I have therefore placed the total gas production of Nos. 7 and 12 at 4.15 billion cubic feet.

The production from the wells Royalite Nos. 8,10,11, 12,18 and 20 has been very intermittent, and freezing has affected the regularity of gas flow. At times the gas production has been over 40 million cubic feet per day from these wells, and again several of them have been frozen over. The No. 8 well was completed in April 1928, and commenced producing at the rate of 20 million cubic feet per day. I place the total gas production at 10.91 billion cubic feet, allowing for the periods when the wells were frozen off.

There is left in this area Dalhousie No. 1 well. This well has a very old history. It was started in the year 1913 and produced gas and oil from upper formations such as the McDougal Segur and Dalhousie sands for some years. In March 1928 the well was completed in the limestone and produced a large

Exhibit 20

volume of gas and oil for intermittent periods.

I place the gas produced at 2.63 billion cibic feet.

19. Q. What total of gas production from the 1200 acres have you arrived at?

A. I arrive at a total of 78.44 billion cubic feet produced from limesone from an area of 1200 acres.

20. Q. Is there any other method of estimating the total amount of gas produced by this area?

A. Yes. There is the method of taking the production of naphtha and estimating the average amount of gas required to produce a barrel of naphtha then multiplying the total naphtha production by this figure.

21. Q. Have you an example of what you mean?

A. Yes. Take the area Section 12, Township 20, Range 3, West of the 5th Meridian. Up to the end of February 1931 this section has produced 383,679 barrels of naphtha. If it requires 60,000 cubic feet on the average to produce a barrel of naphtha from this area we would have a total gas production of 60,000 x 383,679 or a total of approximately 23 billion cubic feet.

22. Q. Have you any figure for any particular well?

A. Royalite 17 for example. This well has produced a total of 146,535 barrels up to the end of February 1931. A total of 7.32 billion cubic feet of gas production would give an average of 50,000 cubic feet per barrel approximately of naphtha.

23. Q. I notice that you have worked out different wells with very much different oil-gas ratio is there an explanation for this?

Exhibit 20

A. Yes. Some wells are much drier than others. In general the large wells have a low oil-gas ratio when they start and gradually get drier as the well gets older. Other wells for instance McDougal Segur No. 2 had sufficient gas to make a big well, but the gas was not as wet as usual. McLeod No. 4 again is a well that since it first came in has not been very wet, This well is producing from some distance in the lime and the gas is quite dry.

24. Q. What amount of gas is required to produce a barrel of naphtha in this area today?

A. Most of the wells in this area are getting old and some of them require as much as 200,000 cubic feet gas to produce a barrel of naphtha. The majority of the wells are over the ratio 150,000 cubic feet to a barrel.

25. Q. Have you omitted any gas in your calculations?

A. Yes. All the gas secured in the upper formations has not been taken into consideration, except Royalite Nos. 1,2,3, and 4, which produced 4 billion cubic feet.

26. Q. Are your records accurate?

A. The production figures have been taken from the published reports, and are, I believe, accurate. The gas figures are estimated in so far as we have not actual meter measurements of the amounts stated It is my opinion that the amount of gas produced from this area has been underestimated.

27. Q. Is there any more gas in the area in question?

A. Yes. I estimate 17.6 billion feet still in the ground.

Exhibit 20

28. Q. Have you anything on which to base such an estimate?

A. Yes. The original rock pressure of this area was we think over 2500 lbs. per sq. inch. Today the rock pressure is still over 1000 lbs. and the wells are still producing large Volumes of natural gas. Even Royalite No. 4 continues to produce.

29. Q. At what figure have you placed the total gas reserves on the 1200 acres you have selected?

A. At 96 billion cubic feet minimum, of which 78.4 billion plus 4 billion from upper horizons, has been already produced.

30. Q. How much gas is that per acre?

A. Eighty million cubic feet per acre minimum.

31. Q. How much do you estimate Royalite No. 4 produced?

A. 27.23 cubic feet. At 80 million cubic feet per acre, this well would drain over 300 acres.

32. Q. What do you think the gas - oil ratio of this well was?

A. Royalite No. 4 produced up to the end of March, 907,913 barrels of naphtha and a total of 27.2 billion cubic feet of gas. This would be an average of approximately 30,000 cubic feet per barrel of naphtha

33. Q. What is the gas-oil ratio of this well today?

A. I understand that the gas-oil ratio is approximately 150,000 cubic feet of gas per barrel of naphtha.

34. Q. What is the total area of Turner Valley?

A. 10,000 acres.

35. Q How many acres are as productive as the 1200 acres you have examined in detail. I believe that the whole area is equally productive.

Exhibit 20

36. Q. What reason have you for this belief?

A. Good wells and wells with large volume of gas have been found at the extreme nothern end of the area, and also at the southern end of the area. Some of the largest wells in the field have been located in the southern end of the field.

37. Q. What amount of gas do you consider Turner Valley contained originally?

A; I consider that there was a minimum of 800 billion cubic feet in the area.

38. Q. How much of this gas has been produced?

A. From the area included in the 1200 acres there has been a total of 75.5 billion cubic feet produced. In addition to this amount there has been the total production of all the balance of the field.

There is only one was to get at the total production of gas from Turner Valley, and that is by an analysis of the production of the whole field.

I have therefore made a list of the wells and have given all the details available in order that my reasons and conclusions may be clear. You will note that the total gas produced from the Turner Valley area amounts to approximately 234 billion cubic feet.

39. Q. What amount of gas will therefore be left in the field?

A. 566 billion cubic feet.

40 Q. Will this all be recovered?

A. I believe that more than this amount will be recovered, as I believe I was low in the estimate I made of the amount of gas remaining in the ground at the

Exhibit 20

present time in the 1200 acres I selected and examined in detail.

41. Q. How long will gas be available fron the Turner Valley

A. The length of time that this area continues to produce depends entirely on the amount of conservation put into force by the operators in Turner Valley.

42. Q. What do you mean by conservation?

A. The amount of restriction of gas production, the gas being kept in the ground for the future.

43. Q. Is there any other way in which this same result may be obtained?

A. Yes. Should the operators stop drilling new wells, the same conservation would take place.

44. Q. Has drilling been partially suspended in Turner Valley?

A. Yes.

45. Q. For what reason?

A. Partially to conserve gas, but also to conserve money.

46. Q. Do you think that Turner Valley would be drained by the wells now producing?

A. No. New wells will have to be drilled from time to time as the production of the older wells begins to fall off.

47. Q. Will this have any effect on the lifetime of the field?

A. Yes.

Exhibit 20

48. Q. What in your opinion is a minimum lifetime to place on the Turner Valley field having in mind the government restriction of production to 40 % of the open flow.

A. Taking into consideration all the factors, I think that Turner Valley will last for 15 years, and probably longer.

Page.

EXHIBIT "21" 452.

An affidavit sworn by the witness Stanley J. Davies, on the 5th day of October, 1938, to be used on a Certiorari proceedings in an application between The Mercury Oils Limited and The Petroleum and Natural Gas Conservation Board, in which he made the statement as reported on Page 451, Volume 5 of the Proceedings.

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EXHIBIT "22" 502.

A graph produced by the witness Stanley J. Davies, showing results of an experiment conducted on two wells, Royalite 32 and Consolidated No. 1, to show the results obtained by operation of the separator at 150 pounds pressure and at 25 pounds pressure.

……

EXHIBIT "23" 540.

A map which accompanied the report the witness Stanley J. Davies, Exhibit "19", and upon which had been superimposed the producing crude wells of Turner Valley, shown in black, and the drilling wells shown in red.

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EXHIBIT "24" 543.

A map of Southern Turner Valley showing the producing wells of the Royalite Oil Company, and also the Royalite wells now drilling.

……

EXHIBIT "25" 552.

Minutes of proceedings and evidence before the Select Standing Committee on Banking and Commerce, Reference, Price of Gasoline, the Session of the House of Commons, Ottawa, printed by the King's Printer, Ottawa, 1932.

....

EXHIBIT "26" 570.

A profile map or chart, North to South of Turner Valley, showing the average index of porosity of the field for every mile, and is dated March, 1938.

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EXHIBIT "27" 571.

A porosity contour map, South end of Turner Valley, lower porous zone, and dated March,1938.

....

EXHIBIT "28" 572.

Conclusions in writing presented by Dr. Link to his Company, the Royalite Oil Company Limited, after an investigation conducted by him in March, 1938, and found printed in the record with his remarks relating thereto. See Pages 577 to 584 inclusive. Volume 6, of the Record of Proceedings.

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EXHIBIT "29" 753.

Contract dated 18th September, 1936, between The British American Oil Company Limited, and The Royalite Oil Company Limited, providing for the transportation of petroleum products from

Correction: By request, Exhibits 29 and 30, which are contracts for the purchase and transportation of petroleum products, by the Royalite Oil Company, are included in full in the Exhibits as follows:

Exhibit	29	in Volume 3
"	33	
	34	
	35	
	42	
	43	
"	78	Map showing storage tanks at Turner Valley end of pipe line.
"	94	Map showing storage tanks at the Turner Valley end of pipe lines of the Royalite Co.
"	95	in Volume 6.
"	96	
	97	in Volume 7.
"	98	in Volume 8.
"	99	Book "Interstate Commerce Commission, etc."
"	100	Dominion regulations Waterfalls Act.
"	103	Text Book dealing with Public Utilities.
"	104	in Volume 9
	105	" " 9
	113	" " 9
	120	" " 9
"	178	" " 11
	200	" " 11
"	673	" " 25

Exhibit 29 in Volume 3

" 33
34
35
42
43

" 78 Map showing storage tanks at Turner Valley end of pipe line.

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" 98 in Volume 8.

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" 100 Dominion regulations Waterfalls Act.

" 103 Text Book dealing with Public Utilities.

" 104 in Volume 9
105 " " 9
113 " " 9
120 " " 9

" 178 " " 11
200 " " 11

" 673 " " 25

Correction: By request, Exhibits 29 and 30, which are contracts for the purchase and transportation of petroleum products, by the Royalite Oil Company, are included in full in the Exhibits as follows:

EXHIBIT 29

THIS AGREEMENT made in triplicate this 18th day of September A.D. 1936 BETWEEN

THE BRITISH AMERICAN OIL COMPANY, LIMITED, having its head office at the City of Toronto, Province of Ontario (hereinafter called "The Producer")

OF THE FIRST PART:

- and -

ROYALITE OIL COMPANY, LIMITED, having its head office at the City of Calgary, Province of Alberta (hereinafter called "The Transporter")

OF THE SECOND PART:

WHEREAS the Producer represents that it owns or controls the oil produced from the wells and manufactured at the plant situated in the Province of Alberta and briefly described as follows:-

Marjon #2	L.S.D. 10, Sec.28, Twp.18, R.2, W.5th.
Spooner Anaconda	L.S.D. 1, Sec.28, Twp. 18, R.2, W.5th.
Highwood Sarcee	L.S.D. 16, Sec.21, Twp.18, R.2, W.5th.
Renfrew Royalties	L.S.D. 3, Sec.28, Twp.18, R.2, W.5th.
Turner Valley Royalties	S½ of L.S.D. 13,Sec.28,Twp.18,R.2,W5th.
Myers-Wright	N½ of L.S.D. 14,Sec.21,Twp.18,R.2,W5th.
Pacalta	L.S.D. 7, Sec. 28, Twp.18, R. 2, W.5th.
Model	L.S.D. 1, N.½ of L.S.D. 8, L.S.D.16, Sec. 22, Twp. 20, R. 3, W.5th.
Absorption Plant	Sec. 22, Twp. 18, R.2, W.5th.

which, together with the production from any other wells which may later be developed or controlled by the Producer in Turner Valley will hereinafter be designated as Producer's oil.

AND WHEREAS British American Oil Company has made arrangements for using Imperial Oil Limited storage tanks located at the latter's Calgary Refinery better described as:-

> Part of Sec. 36, Twp. 23,R.1.W.5th,Province of Alberta,
>
> Part of Sec. 1,Twp.24, R.1. W.5th,Province of Alberta,

and said tanks hereinafter for the purposes of this agreement will be called Producer's storage tanks.

AND WHEREAS the Transporter has a trunk pipe line between the City of Calgary and the Royalite Oil Company's tank farm in Turner Valley and an additional pipe line extending from said tank farm to or near the places of production or manufacture of Producer's oil.

AND WHEREAS the Producer desires the Transporter to transport the said Producer's oil to the Producer's storage tanks in Calgary and the Transporter has agreed to do so on the terms and conditions hereinafter set forth.

NOW THEREFORE this Indenture witnesseth that in consideration of the premises and the mutual covenants and agreements herein contained the sum of One Dollar ($1.00) now paid by each of the parties hereto to the other, the receipt whereof is hereby acknowledged, the parties hereto mutually agree each with the other as follows -

1. In this agreement:-

   A. A barrel of oil will consist of 35 Imperial gallons measured at 60°F.

   B. Crude Oil will consist of a crude petroleum product

having an A.P.I. gravity between 40° and 60° and a viscosity not exceeding 100 @ 0.0°F. Standard Saybolt Universal.

C. The terms Clear Separator Naphtha, Discolored Separator Naphtha and Absorption Naphtha will have the same meaning in this contract as they have in the list of prices posted from time to time by Imperial Oil Limited for Turner Valley products. It is further understood that in no case will the absorption naphtha to be transported have a Reid vapor pressure in excess of 20#.

D. The word "Oil" when used in this contract will include crude oil, discolored separator naphtha, clear separator naphtha and absorption naphtha as defined above or any mixture of them.

2. The Producer agrees to have Producer's oil stored in tanks on the respective properties from which Producer's oil is to be taken and to deliver same at said tanks to Transporter and the Transporter agrees to accept and transport said oil up to thirty-nine thousand two hundred (39,200) barrels every four weeks or such further number of barrels as the Transporter can reasonably transport from time to time over and above the transportation requirements of itself and related companies to the Producer's storage tanks at Calgary in accordance with the provisions hereof. Such oil shall be measured before acceptance by the Transporter for transportation and before acceptance by the Producer after transportation both in the presence of a representative of the other party hereto. The Producer will furnish at each well necessary waste gas for pumping the Producer's oil into the Transporter's pipe line at no charge to the Transporter, provided the Producer owns or controls the gas production at such wells for such purpose.

[illegible] may [illegible] and a [illegible] Standard, hybrid [illegible].

The terms Water Separator Rights, Oil [illegible] and Aeration Rights will have the same mean- [illegible] contract as they have in the files of [illegible] and [illegible] limited for [illegible] property. It is further understood that in no case will the absorption capacity [illegible] in excess of 20%.

The word "Oil" [illegible] in this contract [illegible] oil, discolored [illegible] operator [illegible] and [illegible] above or [illegible].

The Producer [illegible] to have [illegible] oil [illegible] the property [illegible] delivered [illegible] said [illegible] accept [illegible] thousand [illegible] barrels every [illegible] further [illegible] transport [illegible] regular [illegible] and [illegible] by the [illegible] transportation [illegible] the other party [illegible]. The Producer will [illegible] no change [illegible] provided the Producer [illegible].

3. The Transporter shall not be obliged to accept delivery of any oil from the respective properties hereinbefore referred to at intervals of less than three days or in lots of less than three thousand (3,000) barrels each, whichever shall first occur. The Producer agrees to notify the Transporter 24 hours in advance of the time at which the Producer wishes to tender Transporter a shipment of oil.

4. The Transporter will endeavour at all times to deliver the oil which has been tendered by Producer and accepted by Transporter into the Producer's storage tanks at Calgary within three weeks and will make such delivery in no case later than six weeks after said oil has been accepted by transporter. The Transporter shall have the right whenever it deems same advisable to mix discoloured separator naphtha or other high A.P.I. gravity oil with low A.P.I. gravity oil to such an extent as it considers necessary in order to reduce the viscosity of said low A.P.I. gravity oil to a point where it may be safely pumped through Transporter's pipe line. Provided, however, that if the oil, or any of the products included under the term "oil" as set forth in article one hereof, owned or controlled by the Producer, do not conform with the respective specifications applicable thereto as set out in said article one, the Producer shall nevertheless offer the same to the Transporter for transportation hereunder and the Transporter agrees to transport the same in accordance with the terms of this contract if and when the Transporter considers that it can do so safely.

5. The Transporter by its representative shall have the right to go upon the premises where said oil is produced or stored and have access to any and all tanks or storage receptacles for the purpose of making examinations, inspections or tests

6. The Transporter may store the Producer's oil at the Transporter's tank farm in Turner Valley at any and all times for facilitating the batching of oil through the trunk line to Calgary.

7. It is further agreed that when Producer's oil has a temperature other than 60°F. the necessary corrections for volume of oil received for transportation will be made in accordance with the "Abridged Volume Correction Table for Petroleum Oils" issued September 17, 1934, by the United States Department of Commerce.

8. It is agreed that the Transporter will deduct 2% by volume of all oil under 60° A.P.I. gravity and 3% of all oil 60° A.P.I. gravity or over which is delivered to it for transportation by the Producer and will be responsible for the delivery to the Producer's storage tanks of the quantity of oil accepted by it for transportation less such deduction.

9. The Producer agrees to have sufficient available storage at its Calgary storage tanks for receiving for a period of ten days consecutively at the rate of six thousand (6,000) barrels per day. Should the Producer at any time be unable to accept delivery in Calgary of its oil from the Transporter the Transporter may refuse to accept further oil from the Producer in Turner Valley until such time as the Producer has adequate storage capacity at Calgary to receive the oil ready for delivery. After any delivery of oil by the Transporter has been commenced it will not be blocked or stopped by the Producer until the Transporter has completed said delivery of oil.

10. The Producer agrees to pay the Transporter 22½¢ Canadian Funds for each barrel of oil delivered by the Transporter to the Producer's storage tanks in Calgary under the terms of this contract, payment to be made within fifteen days

after Transporter has rendered Producer an invoice for said transportation services.

11. Immediately upon the signing of this contract the Transporter shall forthwith commence and diligently pursue the construction of the necessary pipe lines to connect its pipe line system with the storage tanks on the respective properties referred to in the first recital hereof and this contract shall be in force for a period of one year from the date of execution and thereafter from year to year. After the expiration of four months from the date on which this contract comes into force, either party may terminate this contract by giving the other party eight months notice of its intention so to do. Xt is understood, however, that the Producer will deliver and the Transporter will accept oil for transportation from the storage tanks of the respective properties referred to in the first retical hereof as and when each connecting line is completed thereto and the terms of this contract so far as applicable will apply to transportation through each connected line as and when such connection shall have been made.

12. The Transporter will not be held liable for contamination of the different products transported under this contract by reason of pumping one class of product immediately after another product. All oil accepted by Transporter shall be subject to such changes in gravity or quality while in transit as may result from a mixture of said oil with other oil in the pipe lines or tanks of the Transporter.

13. The Transporter will not accept for transportation any clear or discoloured separator naphtha or absorption naphtha which is not free from bottom sediment and water, nor any crude oil containing bottom sediment and water in excess of 2% by volume as measured by methods approved by Inter-State Commerce Commission regulating pipe lines in the United State

and all bottom sediment and water in excess of 1/2% shall be allowed as deduction from total quantity delivered to Transporter. Producer will deliver all oil to Transporter in as clean a condition and as free from bottom sediment and water as possible. Whenever possible the Producer will heat or cause to be heated the crude oil tendered the Transporter for transportation up to a temperature which is adequate to prevent congealing of said oil in the line on its way to the Transporter's tank farm in Turner Valley.

14. Oil will only be accepted for transportation when free from all liens and charges.

15. The Transporter shall have a lien on all the oil received from the Producer to cover charges of transportation and may withhold delivery of said oil until said charges are paid. If such charges shall remain unpaid for more than thirty days after Transporter has rendered his invoice to the Producer for same, the Transporter by any agent may five days after notice to Producer sell said oil at a public auction at the office of the Transporter on any day not a legal holiday and not less than forty-eight hours after publication of notice in a daily newspaper of general circulation published in Calgary, said notice giving time and place of sale and the quantity of oil to be sold. From the proceeds of the sale the Transporter may ay itself all charges lawfully accruing and all expenses of said sale and the balance will be paid to the Producer.

16. The Transporter shall not be liable for any claim made more than thirty days after delivery of oil to Producer's receiving tanks in Calgary.

17. Neither party shall be liable for failure in the performance hereof if prevented by fire, strikes, accidents, Acts of God or any other cause beyond its control.

18. This contract shall be construed in accordance with the Laws of Ontario. In case of dispute in any matter or thing arising hereunder same shall be settled by arbitration, each party nominating one arbitrator, and the two so chosen appointing a third and the decision of such arbitrators shall be final and binding on the parties hereto.

THIS AGREEMENT shall enure to the benefit of and be binding upon the respective successors and assigns of the parties hereto.

IN WITNESS WHEREOF the parties hereto have hereunto caused their respective corporate seals to be affixed, attested by the signatures of their proper officers, the day and year first above written.

SIGNED, SEALED AND DELIVERED	BRITISH AMERICAN OIL COMPANY, LIMITED.	
In the presence of	"A.L. Ellsworth"	President.
	" H.H.Bronsdon"	Secretary
	ROYALITE OIL COMPANY, LIMITED.	
	"8.F.Heard"	Director.
	"T.E.Burns"	Sec'y.Treasurer.

BIT "30"

THIS INDENTURE made this day of

A.D. 193 ,

BETWEEN:

hereinafter called "the Vendor"

OF THE FIRST PART

- and-

ROYALITE OIL COMPANY, LIMITED, a Body Corporate having its Head Office at the City of Calgary, in the Province of Alberta, hereinafter called "the Purchaser".

OF THE SECOND PART

WHEREAS the Vendor owns or contr9ls the petroleum and natural gas rights in and under those certain tracts or parcels of land situated in the Province of Alberta and comprising

and

WHEREAS the Vendor has drilled or caused to be drilled producing petroleum and natural gas well on the said lands; and

WHEREAS the Vendor is desirous of selling the crude oil and/or crude naphtha obtained by it from its well on the said lands and the Purchaser is desirous of purchasing the same as in this agreement hereinafter set forth.

NOW THEREFORE THIS AGREEMENT WITNESSETH that in consideration of the premises and of the payments and the mutual covenants and agreements hereinafter expressed, the Vendor and the Purchaser do hereby agree each with the other as follows:-

Exhibit "30".

(1) The Vendor hereby sells to the Purchaser and the Purchaser hereby purchases from the Vendor, subject to what is hereinafter provided, all crude oil and/or crude naphtha produced from

(2) The Vendor hereby covenants, promises and agrees:

(a) To make elivery of the said crude oil and/or crude /naphtha in the Purchaser's pipeline at the Vendor's tankage at or near the place of production.

(b) To cause all of such crude oil and/or crude naphtha to be so treated in its own tanks so that the production shall be free from water and shall not contain more than one-half of one per cent. of bottom sediment prior to delivery into the Purchaser's pipe line.

(c) That it will not during the continuance of this Agreement sell or otherwise dispose of to any person, firm or corporation other than the Purchaser any crude oil and/or crude naphtha as aforesaid from its well on the said lands.

(d) To take and maintain at all times an efficient extraction from the production from the said well at its separator or separators.

(e) To grant to the Purchaser of its representatives at all times ingress and egress to and from its wells and works on the said area and the use of all surface lands which the Vendor may own or control for the taking of production including the laying down, construction, maintenance, repair and removal of pipe lines, pumping stations or other works all for the purposes of this agreement and shall supply to the Purchaser free of charge all natural gas

Exhibit "30".

required by the Purchaser in connection with the taking of crude oil and/or crude naphtha pursuant hereto.

(3) The Purchaser hereby convenants, promises and agrees:

(a) To pay to the Vendor for such crude oil and/or crude naptha the current wholesale pipeline price for such products prevailing in Turner Valley at the time and place of production and to make payment for the same not later than the 20th day of each month for the quantity of such production taken delivery of by it during the preceding calendar month, the first payment to be made on the 20th day of the month following upon the taking of production by the Purchaser.

(4) And the parties hereto mutually covenant and agree:

(a) That the said crude oil and/or crude naphtha hereby sold to and purchased by the Purchaser shall be accepted by the Purchaser after measurement by representatives of the Vendor and the Purchaser.

(b) That from the quantities accepted by the Purchaser after measurement as aforesaid two per cent (2%) in the case of crude naphtha and one per cent (1%) in the case of crude oil shall be deducted for evaporation and other losses and the quantities remaining after such deduction shall be the quantities on which the purchase price is to be computed as set forth in paragraph 3(a) hereof.

(c) That the Purchaser shall at all times have the right to curtail the production to be taken by it in accordance with the provisions of this Agreement and in the event that the Purchaser shall so curtail the said production then and in that event it shall do so on a basis which will be, insofar as it is legally entitled

so to do, pro rata with the reduced quantities purchased from other producers and the quantities produced by it from its own properties and the Vendor will, insofar as it is legally able to do so, curtail such production accordingly.

(d) That in the event of any royalty holder or holders being entitled to take production in kind so long as such royalty holder or holders or any one of them shall not take such production in kind the Vendor shall, subject to the provisions of Clause (4) sub-clause (c) herein, sell to the Purchaser all of the crude oil and/or crude Naphtha from the said well as may not be taken in kind as aforesaid.

(e) That the Vendor shall furnish to the Pruchaser division orders showint all the parties entitled to recieve the proceeds from the sale of the said crude oil and/or crude naphtha together with the proportions which each such party is entitled to receive and the Pruchaser is hereby authoriz d to make payment for such production in accordance with the said division orders.

(f) That should any dispute or difference arise between the parties hereto as to the interpretation or the performance of this Agreement including without restricting the generality of the foregoing any dispute or difference as to payment for crude oil and/or crude naphtha, such dispute or difference shall be settled by arbitration, each party forthwith to appoint one arbitrator and in the event of these two arbitrators failing to agree, the said two arbitrators shall forthwith appoint a third arbitrator and the dicision of a majority of these arbitrators shall be final, conclusive and binding upon the parties hereto.

Exhibit "30".

Such arbitration shall be subject to the provisions of "The Arbitration Act" for the Province of Alberta, being Chapter 98 of The Revised Statutes of Alberta 1922 and any Act amending the same or substituted therefor.

THIS AGREEMENT and everything herein contained shall enure to the benefit of and be binding upon the parties hereto and their respective successors and assigns.

IN WITNESS WHEREOF the parties hereto have caused their corporate seals to be hereunto affixed duly attested by the hands of their respective officers duly authorized in that behalf, the day and year first above written.

ROYALITE OIL COMPANY, LIMITED.

EXHIBITS - Cont'd. Page.

EXHIBIT "45" 1056.

Report on available reserves of Oil in Turner Valley prepared by the witness S. F. Shaw, and copied into record, see page 1056.

....

EXHIBIT "46". 1062.

Report as to re-pressuring of Turner Valley prepared by the witness S. F. Shaw, and copied into the record, see page 1062.

....

EXHIBIT "47". 1085.

Curves and work sheets used by the witness, Stanley Gill, in arriving at his estimates of reserves in the Turner Valley field. This Exhibit has reference to B. & B. Royalties, No. 1 well, showing production by months and a calculation of the accumulated production up to the end of these months, also showing gas-oil ratios by months.

....

EXHIBIT "48". 1088.

Logarithmic decline curve for the B. & B. Royalties well, prepared by the witness Stanley Gill.

....

Page.

EXHIBIT "49". 1088.

Semi-logarithmic rate cumulative plotting of the decline of B. & B. Royalties well No. 1, prepared by the witness Stanley Gill.

....

EXHIBIT "50". 1088.

A plotting of the gas-oil ratios on B. & B. Royalties No. 1 well, prepared by the witness Stanley Gill.

....

EXHIBIT "51". 1089.

Graph showing the actual production in green and the decline curve in red of B. & B. Royalties No. 1 well, prepared by Stanley Gill.

....

EXHIBIT "52". 1089.

A sheet of calculations showing production by months of Brown No. 1 and Brown No. 2, prepared by the witness, Stanley Gill.

....

EXHIBIT "53". 1089.

Semi-logarithmic cumulative plot of production from these two wells, Brown No. 1 and Brown No. 2, prepared by the witness, Stanley Gill.

....

EXHIBIT "54". 1089.

A sheet showing production data and calculation of accumulated production for Davies No. 2 well prepared by the witness Stanley Gill.

....

Page.

EXHIBIT "55". 1089.

Logarithmic plotting and calculation of accumulated production for Davies No. 2, prepared by the witness Stanley Gill.

....

EXHIBIT "56". 1089.

A replotting in comparison with the records of actual production to rectangular co-ordinates, prepared by the witness Stanley Gill.

....

EXHIBIT "57". 1090.

Semi-logarithmic rate cumulative graph for the production from Davies No. 2, prepared by the witness Stanley Gill.

....

EXHIBIT "58". 1090.

A sheet showing production data and calculation of the accumulated production and of gas-oil ratios for Foundation No. 1, prepared by the witness Stanley Gill.

....

EXHIBIT "59". 1090.

Semi-logarithmic rate cumulative plotting of the production data on Foundation No. 1, prepared by the witness Stanley Gill.

....

EXHIBIT "60". 1090.

A sheet showing production data and calculated accumulated production for Sterling Pacific No. 3.

....

Page.

EXHIBIT "61". 1090.

Semi-logarithmic rate cumulative plotting of the decline data for Sterling Pacific No. 3, prepared by the witness Stanley Gill.

....

EXHIBIT "62" 1091.

A sheet of calculations for Sterling Pacific No. 4, prepared by the witness Stanley Gill.

....

EXHIBIT "63". 1091.

A semi-logarithmic plotting of rates cumulative curve for Sterling Pacific No. 4, prepared by the witness Stanley Gill.

....

EXHIBIT "64". 1091.

Sheet showing production data and the calculations of accumulated production for Sterling Pacific No. 5, prepared by the witness Stanley Gill.

....

EXHIBIT "65". 1091.

Semi-logarithmic plotting of a rates cumulative decline curve for Sterling Pacific No. 5, prepared by the witness Stanley Gill.

....

EXHIBIT "66". 1091.

Sheet carrying production data and calculations of the accumulative production for Turner Valley Royalties No. 1, prepared by the witness Stanley Gill.

....

EXHIBIT "67". 1091.

Logarithmic plot of the decline curve for Turner Valley Royalties No. 1, prepared by the witness Stanley Gill.

....

EXHIBIT "68". 1091.

A plot of rectangular co-ordinates of the extrapolated decline curve for Turner Valley No. 1, prepared by the witness Stanley Gill.

....

EXHIBIT "69". 1092.

Semi-logarithmic plotting and rates of accumulative decline curve for Turner Valley No. 1, prepared by the witness Stanley Gill.

....

EXHIBIT "70". 1092.

Sheet containing production data and calculations of accumulated production for Westflank No. 1, and Westflank No. 3, prepared by the witness Stanley Gill.

....

EXHIBIT "71". 1092.

Semi-logarithmic rate of cumulative plotting of production data for Westflank No. 1 and Westflank No. 3, prepared by Stanley Gill.

....

EXHIBIT "72". 1092.

Sheet containing production data and calculations of accumulated production by months for Monarch No. 1 and Westside No. 1, prepared by the witness Stanley Gill.

....

Page.

EXHIBIT "73". 1092.

Semi-logarithmic rate accumulative plotting of decline curves for Monarch No. 1 and Westside No. 1, prepared by the witness Stanley Gill.

....

EXHIBIT "74". 1128.

Graph showing decline curve on B. & B. Royalties No. 1 well, as prepared by Dr. T. A. Link, with additional information superimposed thereon by Mr. Deussen, and presented by the witness Mr. Deussen.

....

EXHIBIT "75". 1128.

Graph prepared by Engineers of Royalite Oil Company, setting out their ideas of the decline curve used by Mr. Shaw in his evidence, (Exhibit "49"), and presented by the witness Mr. Deussen.

....

Exhibit "29" cont'd. Page.

Turner Valley to Calgary through the Royalite pipeline. The pertinent clauses 3, 9 and 10 will be found in the record of proceedings, Clause 3 on Page 811, and Clauses 9 and 10 on Page 781, Volume 8 of the Record of Proceedings.

....

EXHIBIT "30" 850.

A standard form of Contract as used by the Royalite Oil Company Limited as Purchaser for the purchase of the production of petroleum products from Turner Valley wells.

....

EXHIBIT "31" 923.

A letter dated 22nd June, 1938, by the Imperial Oil Company Limited, with memorandum dated 20th June, 1938, attached, arranging for the payment of $35,000.00 yearly rental by The Royalite Oil Company Limited to the Imperial Oil Company Limited, for the use of 200,000 barrels storage tanks in East Calgary, owned by the Imperial Oil Company Limited.

....

EXHIBIT "32" 942.

Topographical map of the Calgary District filed by the witness S. Coultis, showing pipelines and equipment of the Pipeline Division of the Royalite Oil Company Limited.

....

Page

EXHIBIT "33" 942.

A small map filed by the witness S. Coultis showing the trunk lines of the Royalite Pipeline Division.

....

EXHIBIT "34" 949.

A map filed by the witness, S. Coultis, showing the oil gathering system in Turner Valley of the Royalite Pipeline Division.

....

EXHIBIT "35" (a), (b) and (c). 950.

Three sectional maps showing the pipelines, pumping stations etc., of the Royalite Pipeline Division.

....

"C9"

SHEET NO. 1 of CHART NO. 2

NAPHTHA PRODUCTION OF WELLS IN TURNER VALLEY IN BARRELS PER MONTH.

DATE	FOOTHILLS NO.1	MODEL	SPOONER	VULCAN	DALHOUSIE NO. 6	ROYALITE NO. 9	ROYALITE NO. 13	DALHOUSIE NO. 1	ROYALITE NO. 7	ROYALITE NO. 12	ROYALITE NO.21	ILLINOIS ALBERTA
Dec. 1927				Estimated					2966			Estimated
Jan. 1928				to date					3087			to date
Feb.				12227					3076			33,155
Mar.				---				3560	1844			3,160
April				2000				6957	1603			2,110
May				---				--	3189			2,684
June				2600				1527	2840			2,617
July				2000				170	2567			1,849
August				200				4598	2361			2,543
Sept.				--				310	2478			2,123
Oct.	353		1363	--	424	179		135	2673			2,489
Nov.	1716		1350	688	423	809		----	2209			2,331
Dec.1928	2123		1453	167	533	847		5887	2434			2,725
Jan.1929	2300		828	161	446	805		2555	2441			2,694
Feb.	2128		1052	---	536	805		----	2096			2,347
Mar.	1979		647	223	605	927	245	630	2329			2,079
April	2130		608	--	492	695	216	1399	2199			2,097
May	2218		1581	--	539	643	214	2337	2179			2,058
June	2509		1089	339	521	282	124	276	2423			1,652
July	3420		1960	328	426	602	101	864	2424			1,293
Aug.	3513		1851	196	394	575	121	2844	2801			1,698
Sept.	3668		2210	589	395	580	103	402	1530			1,449
Oct.	3288		2211	--	313	702	128	1150	2990			1,304
Nov.	3167		2247	258	230	596	111	2616	96			1,464
Dec. 1929	1293		2065	211	373	688	128	111	19			1,536
Jan. 1930	3319		2280	413	279	680	115	1610	---			1,355
Feb.	3043		2040	350	285	592	107	635	---			1,263
Mar.	3623		2059	---	130	482	128	---	---			1,061
April	2916	2497	227	---	490	806	120	831	---		368	1,275
May	3169	3114	1106	---	240	655	96	---	---	96	561	1,129
June	2917	3947	---	---	170	542	144	210	---	1603	269	889
July	3073	4566	2143	---	419	585	9	230	---	1654	140	749
Aug.	3371	5077	2281	---	155	157	---	210	---	1661	---	291
Sept,	2981	4871	3167	---	146	388	---	641	757	1604	---	---
Oct.	3162	5045	3157	---	148	937	---	89	---	1399	---	---
Nov.	3273	4570	3620	423	144	786	---	---	2541		---	---
Dec. 1930	3389	5461	3676	216	153	1039	---	171	2958		---	---
Jan. 1931	3667	6068	4354	---	147	775	---	---	2067		197	---
Feb.	3441	4601	3759	215	124	845	---	---	1993		510	---
March	3811	4932	3443	---	150	728	---	---	1995		1128	---
	@ 2.95	@2.71	@ 4.20		@ 3.19							
	84,960	54,749	60,826	23,804	9,830	19,732	2,210	43,955	83,148		3,173	90,388
	10,942.45	13,365,72	14,460.60		478.50							
	47,78	32.09	156,88		10.69							

"C 10"

SHEET NO. 2 of CHART NO. 2

NAPHTHA PRODUCTION OF WELLS IN TURNER VALLEY IN BARRELS PER MONTH

DATE	ROYALITE NO. 8		ROYALITE NO. 18	ROYALITE NO. 11		ROYALITE NO. 20	McD. SEGUR NOS.2,3 & 4	BR. DOMINION NO. 2	ROYALITE NOS.14 & 16		McLEOD NOS. 1,2,3,4 & 5.	ROYALITE NO. 17	REGENT	SIOUX CITY
Dec. 1927														
Jan. 1928											Estimated to date			
Feb.											38155			
March											4163			
April	1355										4027			
May	7412										3945			
June	7607										3965			
July	8103										599			
Aug.	7809										173			
Sept.	6725										---			
Oct.	1654										3357			
Nov.	522										1011			
Dec. 1928	52										1988			
Jan. 1929	39										2274	736		
Feb.	---		277								416	908		
March	----		6211						370		646	878	481	
April	4002		5400						1158		---	271	1150	
May	5054		4595						1573		3129	4958	1079	
June	5601		3897				1571		501		4614	6137	1914	
July	4940		3591				---		425		4729	6109	1828	
Aug.	5309		3814				1812		424		2748	6957	2056	
Sept.	4431		2729				1748		357		4199	6820	1934	
Oct.	5221		3115				1417		438		4710	6669	2087	
Nov.	3168		3671				2026		124		5179	6754	1884	
Dec. 1929	5269		3829				1841		---		4076	6802	1912	
Jan. 1930	4770		4018				1643	3479	149		3302	6810	1765	
Feb.	3331		3358				1226	3265	---		3867	5928	985	
March	2818		4120				1641	2882	---		2673	6833	1770	
April	2364		3986				1432	3099	103		2213	6752	1430	
May	1637		3372				1432	2386	91		2155	5951	809	
June	1886		1983				1180	2798	7	167	1593	7245	1229	
July	2311		723	5103			1136	2417		64	2177	6801	1227	
Aug.	539		3084	1490			1107	2397		101	924	6363	1190	
Sept.	505		3046	503			2407	2263		107	844	6610	976	
Oct.	2346		1847	1352			2435	2530		64	453	6267	1298	---
Nov.		4665		1192			811	2140		67	928	5040	1185	---
Dec. 1930		4830		3888		620	3863	1869		~~47~~	1293	4842	994	336
Jan. 1931		4118			3808		2026	1730		205	1876	5297	1248	312
Feb.		2911			2113		2007	1358		86	361	1456	1184	193
March		1838			2679		2571	1312		190	2382	3540	970	---
		195,799			22,748		37,232	35,925	5,720	1,099	125,144	146,535	34,585	841

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SHEET NO. 3 of CHART NO. 2

NAPHTHA PRODUCTION OF WELLS IN TURNER VALLEY
IN BARRELS PER MONTH.

ATE	ALBERTAN	FOOTHILLS	ROYALITE	OKALTA	ROYALITE			STRUCTURE	DALHOUSIE	ADVANCE	ROYALITE	CALMONT	
	FEDERATED	NO. 2	NO.19	Nos. 1,2 & 3	No. 23	No.6	No. 25		NO.7		No. 24	Nos. 2 & 7	
une 1928						1157							
uly						5643							
ug.						6360							
ept.						3669							
ct.						---							
ov.				6045		---							
ec. 1928				11296		---							
an. 1929				2617		---							
eb.				886		---							
ar.				288		---							
pr.				5729		---							
ay				8734		---							
une				10500		---							
uly				8681		---							
ug				9662		---							
ept		1488		9130		---							
ct.		1322		8485		460							
ov.		1551		6122		3377							
ec. 1929		1579		5695		5510							
an. 1930		1046		2872		5595							
eb.		1037		2245		4755							
arch		1039		6060		5098							
pril		352		3658	673	6025							
ay		587	965	2758	2052	8399						1699	
une	871	21	1685	4020	3015	7450						3096	
uly	1376	527	2630	462	2582	7573				1071		4592	
ug.	1332	66	4967	311	3164	6686			2771	4342		4538	
ept.	1382	---	4685	---	4950	4967			3050	4348		3520	
Oct.	1239	82	4555	5254	5008	6076			3465	3339		3277	146
Nov.	1235	---	3662	4666	4326	4629			4598	3498		2608	284
Dec. 1930	1226	473	3735	5069	4509	4655			3914	3258		2278	477
Jan. 1931	1023	246	3112	3898	4356	741		321	3898	3273	350	1718	379
Feb.	805	911	2840	2662	3784	3330	2395	604	3521	2924	968	1413	420
March	736	1162	2852	3372	3994	1417	2477	2161	3328	2430	889	1293	483
	11,225	13,489	35,688	141,177	42,413	103,572	4872	3086	28,545	28,483	2,207	30,032	2189

"C 12"

SHEET NO. 4 of CHART NO. 2

NAPHTHA PRODUCTION OF WELLS IN TURNER VALLEY IN BARRELS PER MONTH

DATE	HOME OIL COMPANY No. 1	No. 2	No. 3	No. 4	No. 5	BALTAC	ASSOCIATED NO. 1	No. 2	A.P. CON. Nos. 1 & 2	HARGAL	FREEHOLD No. 2	WELLINGTON	LOWERY PET.
Feb. 1929	6344												
Mar.	18150												
Apr.	20796												
May	22663												
June	20853	9925											
July	23147	12276											
Aug.	19519	12862	6230										
Sept.	3412	11735	23089				1412						
Oct.	14341	4114	20084				8319						
Nov.	12156	8425	19350				8857						
Dec. 1929	5028	7225	16222				7380						
Jan. 1930	7291	4484	17274				6147						
Feb.	3212	4661	15737	6544			210						
Mar.	11520	5770	14705	7729			118						8460
Apr.	6343	3427	10377	6857		329	6217						1147
May	5546	4366	10233	3126		996	4724				342	2603	----
June	5705	4760	8488	4759		---	3546		242		2132	4742	5417
July	4461	3377	119	383		726	1841		968		2710	4410	3125
Aug.	3921	3186	7943	3754		1187	505		1403	149	3110	3761	6991
Sept.	3959	4621	6453	3259		1435	2584	271	1440	344	3254	1199	5667
Oct.	2851	3688	5917	3436		1413	1512	1491	1424	515	3568	2559	5358
Nov.	2591	2668	4864	3449		956		2564	1050	795	3128	391	4298
Dec. 1930	2753	2350	4332	3417	84	966		2043	1106	380	2498	4228	3864
Jan. 1931	2383	2209	3447	2771		704		2614	1092	550	2220	3469	3941
Feb.	1530	1872	2362	2110	254	638		2578	1009	368	1383	2639	2482
Mar.	994	1235	2148	1973	241	476		2021	998	360	1278	2607	1903
	231,449	119,236	199,374	53,567	579	9,826	66,954	—	10,732	3,461	25,623	32,608	52,673

"C 13"

SHEET No. 5 of CHART No. 2

NAPHTHA PRODUCTION OF WELLS IN TURNER VALLEY IN BARRELS PER MONTH.

DATE	MAYLAND NO. 1	No. 2	No. 3	HOMESTEAD	EAST CREST No. 1 & 2	FOOTHILLS No. 3	COMMON-WEALTH	MIRACLE	MERCURY No. 1	No. 2	No. 3	STERLING PACIFIC	MILL CITY	SOUTHERN LOWERY
Apr. 1930	182											1062		
May	1549											398		
June	----									326	1864	966		
July	1809					1224				1133	5110	----		
Aug.	2420			572		2151				809	5649	382		
Sept.	5103	3576		1464	466	2208				1016	5755	513	200	
Oct.	4310	5772		1966	16198	1507		6515		826	5764	1338		
Nov.	4311	5077		2439	11879	40		9517		817	6184	1263	329	
Dec. 1930	4272	5069	3739	2155	14127	155		8786	13884	596	6379	1110	203	
Jan. 1931	3307	4377	4373	2209	12470	945		8102	20795	442	6199	1385		
Feb.	2642	3631	3668	1796	11949	2103	346	6708	16893	392	5599	1020		
March	2337	3619	3482	1697	9109	1914	2738	6766	15994	----	5406	1182		239
	32,242	31,121	15,262	14,298	76,198	12,247	3,084	46,394	67,566	6,357	53,909	10,619	732	239

NAPHTHA PRODUCTION OF WELL ROYALTY No. 4 IN BARRELS PER MONTH.

1925		1926		1927		1928		1929		1930-1931	
JANUARY		JANUARY	18,543	JANUARY	19,632	JANUARY	19,435	JANUARY	17,310	JANUARY	1360
FEBRUARY		FEBRUARY	16,497	FEBRUARY	17,779	FEBRUARY	18,387	FEBRUARY	14,953	FEBRUARY	2873
MARCH		MARCH	17,747	MARCH	19,634	MARCH	18,690	MARCH	15,979	MARCH	2328
APRIL		APRIL	15,883	APRIL	18,498	APRIL	17,681	APRIL	16,087	APRIL	3710
MAY		MAY	16,659	MAY	18,693	MAY	15,870	MAY	14,161	MAY	3511
JUNE		JUNE	15,548	JUNE	16,810	JUNE	14,992	JUNE	11,220	JUNE	4392
JULY	TO DATE	JULY	15,597	JULY	16,977	JULY	15,441	JULY	11,485	JULY	2327
AUGUST	94,127	AUGUST	15,359	AUGUST	16,977	AUGUST	15,173	AUGUST	7,901	AUGUST	1122
SEPTEMBER	17,302	SEPTEMBER	15,886	SEPTEMBER	16,399	SEPTEMBER	16,143	SEPTEMBER	1,089	SEPTEMBER	5
OCTOBER	15,175	OCTOBER	16,228	OCTOBER	17,481	OCTOBER	14,032	OCTOBER		OCTOBER	1212
NOVEMBER	13,234	NOVEMBER	17,398	NOVEMBER	18,261	NOVEMBER	16,083	NOVEMBER	825	NOVEMBER	416
DECEMBER	16,828	DECEMBER	19,124	DECEMBER	20,338	DECEMBER	15,564	DECEMBER	1,927	DECEMBER	2184
										JAN,1931	2266
										FEB.1931	769
										MARCH	146
	156,766		193,662		218,465		197,451		112,939		28,630

GRAND TOTAL FOR NO. 4 ROYALITE
TO MARCH 31, 1931

"C 14"

SHEET NO. 1 of CHART NO. 3

HISTORY OF WELLS PRODUCING FROM THE LIMESTONE IN TURNER VALLEY.

NAME OF WELL	DATE COMPLETED	DEPTH	INITIAL GAS FLOW MILLIONS CU. FT. DAILY	INITIAL DAILY NAPHTHA PRODUCTION IN BBLS. FIRST MONTH	INITIAL GAS RATIO M. CU. FT. PER BBL.	PRESENT GAS FLOW MILLIONS CU. FT. DAILY	PRESENT NAPHTHA PRODUCTION IN BBLS. DAILY AVERAGE MARCH 1931	PRESENT OIL GAS RATIO M. CU. FT. PER BBL.	TOTAL NAPHTHA PRODUCTION IN BARRELS TO MARCH 31st, 1931	ESTIMATED AVERAGE OIL GAS RATIO PER BARREL NAPHTHA IN M. CU. FT.	TOTAL ESTIMATED GAS PRODUCTION IN M. CU. FT.	IMPERIAL BY SECTIONS.	OUR TOTAL BY SECTIONS.	SECTION.
FOOTHILLS NO. 1	NOV!28	5915	8	55	145	6.7	123	54	84,960	71	6,032,160	6.612	6.032	26
MODEL NO. 1	APR'30	5910	9	83	108	4.5	159	22	54,749	40	2,189,960	1.815	2.189	22
SPOONER NOS.1,2,3	OCT'28		8	44	181	22.	111	200	60,826	200	12,165,200)			
VULCAN	1926	4960	10	80	125				23,804	125	2,975,500)			
DALHOUSIE NO. 6	OCT'28	5303	3.5	13.7	254	1.5	5	300	9,830	250	2,457,500)	30.579	26.571	13
ROYALITE NO. 9	OCT'28	5423	5	27	185	5	23	217	19,732	200	3,946,400			
ROYALITE NO. 13									2,210	250	552,500			
DALHOUSIE NO. 1	MAR'28	4565	18	232	73				43,955	60	2,637,300	1.050	2.637	18
ROYALITE NO. 7	DEC'27	4281	5	89	56	8	64	125	83,148	50	4,157,400)			
ROYALITE NO. 12	MAY'30										)			
ROYALITE NO. 21	APR'30	5045		30		5	33	151	3,173	100	317,300)			
ILLINOIS ALBERTA	DEC'26	3684	5	80	60	4			90,388	50	4,519,400			
ROYALITE NOS.8-18	APR'28	2753				9			195,799	50	9,789,950			
" 11 & 20						9	86	104	22,748	50	1,137,400			
McD.SEGUR 2,3,4,	MAY'29					12	83	144	37,232	140	5,212,480			
BR.DOMINION NO.2	JAN'30	5177	8	112	71	5.5	42	131	35,925	83.1	2,985,367	27.163	24.084	12
ROYALITE NO. 14	MAR'29	3557							5,720	100	572,000			
ROYALITE NO. 16	JUN'30	6224	5	5		3	6	500	1,099	400	439,600			
Mc LEOD 2,3,4,5,	JLY'26					18	77	233	125,144	100	12,514,400			
ROYALITE NO. 17	JAN'29	4034	12		71	8	114	70	146,535	50	7,326,750	13.575	9.824	6
REGENT NO. 3	MAR'29	5552	5	38	131	4.5	31	145	34,585	70	2,420,950			
SIOUX CITY	DEC'30	6194				3			841	400	326,400			
ALBERTAN FEDERTD.	JUN'30	5375	6	44	136	4	23	174	11,225	150	1,683,750			
FOOTHILLS NO. 2	SEP'29	4940	9	32	281	2.5	12.6	190	13,489	150	2,023,350	41.400	27.439	1
ROYALITE NO. 19	MAY'30		7.5	56	134	7.5	91	83	35,688	70	2,498,160			
OKALTA 1, 2 & 3	NOV'28	5040	20	364	54	15	108	139	141,177	60	8,470,620			
ROYALITE NO. 23	APR'30		12.5	66	195	10	179	75	43,413	70	2,968,910)			
ROYALITE NO. 6	JUN'28	4531	11	205	54	7.5	107	70	103,572	60	6,214,320)	12.990	7.497	31
ROYALITE NO. 25	FEB'31	4678				7.5	83	90	4,872	100	487,200)			
STRUCTURE	JAN'31	5240	7			7	70	100	3,086	100	308,600			
DALHOUSIE NO. 7	AUG'30	5339	11	100	110	7	107	65	28,545	80	2,283,600	2.310	2.283	30
ADVANCE	JLY'30	6515	13	140	92	7.5	80	92	28,483	100	2,848,300	2.025	2.848	19
ROYALITE NO. 24	JLY'30	4491				7.5	34	220	2,207	220	485,540	.675	.485	29
CALMONT NO. 2	MAY'30	4975	20	55	363				30,032	150	4,504,800			
CALMONT NO. 7	OCT'30	4346				10.	42	237	2,189	150	328,350			
HOME NO. 1	FEB'29	5280	17.6	585	25	8	32	250	231,449	67	15,671,256			
HOME NO. 2	AUG'29	5507	25.9	396		10	40	250	119,236	67	7,988,812			
HOME NO. 3	SEP'29	5139	35	769	45	15	62	217	199,374	70	13,956,180			
HOME NO. 4	FEB'30	5601	20	249	80	15	63	238	53,567	70	3,749,690			
HOME NO. 5	DEC'30	4898				2	8	250	579	250	144,750			

"C 15"

SHEET NO. 2 of CHART NO. 3

HISTORY OF WELLS PRODUCING FROM THE LIMESTONE IN TURNER VALLEY (continued).

NAME OF WELL	DATE COMPLETED	DEPTH	INITIAL GAS FLOW MILLIONS CU. FT. DAILY	INITIAL DAILY NAPHTHA PRODUCTION IN BBIS FIRST MONTH	INITIAL OIL GAS RATIO M. cu. ft. per bbl.	PRESENT GAS FLOW MILLIONS CU. FT. DAILY	PRESENT NAPHTHA PRODUCTION IN BBIS. DAILY AVERAGE MARCH 1931	PRESENT OIL GAS RATIO M. cu. ft. per bbl.	TOTAL NAPHTHA PRODUCTION IN BARRELS TO MARCH 31st, 1931.	ESTIMATED AVERAGE OIL GAS RATIO PER BARREL NAPHTHA IN M. CU. FT.	TOTAL ESTIMATED GAS PRODUCTION IN M. CU. FT.	IMPERIAL	OUR TOTAL	SECTION
BALTAC NO. 1	APR'30		7.5	32	234	4	15	266	9,826	250	2,456,500			
ASSOCIATED 1 & 2	SEP'29	5410	15	268	56	10	65	154	66,954	70	4,686,780			
A.P.CON. 1 & 2	JUN'30	5796	10	45	222	6	32	187	10,732	200	2,146,400			
HARGAL	AUG'30	5366	4	11	360	4	12	330	3,461	300	1,038,300			
FREEHOLD	APR'30	4825	17.5	71	246	10	41	244	25,623	200	5,124,600			
WELLINGTON	APR'30	5019	18	153	117	15	84	178	32,608	150	4,891,200	63,814	66,687	20
LOWERY PETROLEUM	FEB'30	5573	18	273	66	8	61	128	52,673	75	3,950,475)			
MAYLAND NO. 1	APR'30	6242	10	45	220	8	76	106	32,242	70	2,256,940)	11,250	11,606	17
MAYLAND NO. 2	SEP'30	6049	11	186	59	10	116	86	31,121	70	2,178,470)			
MAYLAND NO. 3	DEC'30	6177	10	126	89	10	112	89	15,262	80	1,220,960			
HOMESTEAD	AUG'30	4702	6	48	125	5	58	86	14,298	80	1,143,640)			
EAST CREST 1 & 2	SEP'30	4675	20	522	38	15	265	56	76,198	50	3,809,900)	6,954	4,953	16
FOOTHILLS NO. 1 3	AUG'30		7.5	70	107	5	61	80	12,427	80	979,760	.945	.979	8
COMMONWEALTH	FEB'31	5000				8	88	90	3,085	91	280,635	.160	.327	9
MIRACLE NO. 1	OCT'30	5432	15	307	48	7.5	218	34	46,394	40	1,855,760)			
MERCURY NO. 1	DEC'30	5275	42	663	63	18	516	34	67,566	38.1	2,574,265)	8.881	8.588	4
MERCURY NO. 2	MAY'30	5128	5	38	130	5			6,357	130	826,410)			
MERCURY NO. 3	MAY'30	5372	14	170	82	10	174	57	53,909	59.1	3,186,022)			
STERLING PACIFIC	MAR'30	5800	3.5	35	100	3	38	78	10,619	80	849,520	.825	.849	33
MILL CITY	SEP'30	5065				2			732	200	146,400			
SOUTHERN LOWERY	MAR'31	4867				2	7	280	239	200	47,800			
ROYALITE NO. 4	SEP'24	3740	21.5			1	5	200	907,913	30	27,337,390	27.405	27.809	7
						438.2	4207.6		3,633,717		234,180,232	260.424	234.180	

Average oil gas ratio for field
for March 1931 95,700 cu. ft. per bbl.

Average oil gas ratio for field for entire period 64,300 cu. ft. per barrel

Mayland 6	6	8
East Crest	3	5
Richfield	1	3
British Am.	3	8
		462.2

"C 21"

CHART NO. 5

CHART SHOWING AVERAGE PRODUCTION OF GAS PER BARREL PER MONTH IN FIVE TYPICAL WELLS.

MONTHS	BRITISH DOMINION NO. 2. Completed Dec. 1929 Location L.S.D. 6 Sec. 12 Tp. 20 Rge 3 W 5th M.					MERCURY No. 1 Completed Nov. 1930 Location L.S.D. 13 Sec. 4 Tp. 19 Rge 2. W 5th M.					MERCURY No. 3 Completed May 1930 Location L.S.D. 2 Sec. 4 Tp. 19 Rge 2 W 5th M.				
	Daily Average Naphtha Prod'n in Barrels	Total Naphtha for month	Daily Average Gas flow in Millions cu.ft.	Oil Gas ratio M. cu. ft. pr barrel	Total Gas Production per month in M. cu. ft.	Daily Average Naphtha Prod'n. in Barrels	Total Naphtha for month	Daily Average Gas flow in Millions cu.ft.	Oil Gas ratio M. cu. ft. per Barrel	Total Gas Production per month in M. cu. ft.	Daily Average Naphtha Prod'n in Barrels	Total Naphtha for month	Daily Average Gas flow in millions cu. ft.	Oil Gas ratio M. cu. ft. per Barrel	Total Gas Production per month in M. cu. ft.
1930															
JAN.	112	3479	8	71.	247,009.										
FEB.	116	3265	8	69.	226,285.										
MAR.	93	2882	7.5	80.	230,560.										
APR.	103	3099	7.5	72.	223,228.										
MAY	77	2386	7.	90.	214,740.										
JUNE	90	2798	7.	77.	215,446.						part 62	1864	.15.		152,848.
JULY	78	2417	6.5	78.	188,526.						168	5110	14.	82.	419,020.
AUG.	77	2397	6.5	84.	201,348.						182	5649	13.5	74.	418,026.
SEPT.	73	2263	6.	82.	185,566.						192	5755	13.	67.	385.485.
OCT.	81	2530	6.	74.	187,220.						186	5764	10.	53.	305,492.
NOV.	71	2140	6.	84.	179,760.						206	6184	10.	48.	296,382.
DEC.	60	1869	6.	100.	186,900	part 663	13884	42.	63.	837,692	205	6379	10.	48.	316,192.
1931															
JAN.	55	1730	5.5	100.	173,000.	671	20795	22.	32.	665,440	200	6199	10.	50.	309,950.
FEB.	48	1358	5.5	114.	154,812.	603	16893	20.	30.	506,790	200	5599	10.	50.	279,950.
MARCH	42	1312	5.5	131.	171,872.	516	15994	18.	35.	559,790.	174	5406	10.	57.	308,142.
		35,925			2,986,272		67,566			2,569,712.		53,929			3,191,937.
	Average Oil Gas Ratio 83,100 cu. ft. per bbl.					Average Oil Gas Ratio 38,000 cu. ft. per barrel					Average Oil Gas Ratio 59,100 cu. ft. per barrel				

SHEET NO. 2 of Chart No. 5.

CHART SHOWING AVERAGE PRODUCTION OF GAS PER BARREL PER MONTH IN FIVE TYPICAL WELLS.

MONTHS	FOOTHILLS WELL NO. 1 Completed Sept. 1928 Location L.S.D. 4 Section 26, Tp. 20 Rge 3 W 5th M.					HOME WELL NO. 1 Completed Jan. 1929 Location L.S.D. 15, Section 20 Tp. 19 Rge 2 W 5th M.				
	Daily Average Naphtha Prod'n in Barrels	Total Naphtha for month	Daily average gas flow in millions cu. ft.	Oil Gas ratio M. cu. ft. per barrel	Total Gas Production per month in M. cu. ft.	Daily Average Naphtha Prod'n in Barrels	Total Naphtha for month	Daily average gas flow in millions cu. ft.	Oil Gas ratio M. cu. ft. per barrel	Total Gas Production per month in M. cu. ft.
Oct. 1928		353	8.	140.	48,200.	585				
Nov.	57	1716	8.	140,	240,240.					
Dec. 1928	68	2123	8.	117.	248,391.					
Jan. 1929	74	2300	7.5	101.	232,300.	585				
Feb.	76	2128	7.5	98.	208,544.	585	6344	17.6	30.	190,320.
Mar.	64	1979	7.5	117	231,543.	693	18150	17.6	25.	453,750.
Apr.	71	2130	7.	98.	208,740.	731	20796	17.6	25.	519,900.
May	71	2218	7.	98.	217,364.	695	22663	17.6	24.	543,912.
June	83	2509	7.	84.	210,756.	746.	20853	17.	24.	500,472.
July	110	3420	7.	63.	215,460.	629	23147	17.5	23.	532,381.
Aug.	113	3513	7.	61.	214,293.	113	19519	17.	27.	527,013.
Sept.	122	3668	7.	57.	209,076.	462	3412	---	40	136,480.
Oct.	106	3288	7.	66.	217,008.	405	14341	30.	64.	917,824.
Nov.	105	3167	7.	66.	209,022.	162	12156	30.	74.	899,544.
Dec. 1929	41	1293	7.	--	80,338.	234	5028	12.	74.	372,072.
Jan. 1930	107	3319	7.	65.	215,735.	114	7291	20.	85.	619,735.
Feb.	106	3043	7.	64.	194,752.	371	3212	20.	--	562,100.
Mar.	117	3623	7.	59.	213,757.	211	11520	20.	53.	610,560.
April	97	2916	7.	72.	209,952.	178	6343	15.	71.	450,353.
May	102	3169	7.	68.	215,492.	190	5546	20.	112.	621,152.
June	97	3917	7.	72.	210,024.	143	5705	25.	131.	747,355.
July	99	3073	7.	69.	212,037.	126	4461	17.5	122.	544,242.
Aug.	108	3371	7.	64.	215,744.	131	3921	12.	95.	372,495.
Sept.	99	2981	7.	69.	205,689.	91	3959	8.5	64.	253,176.
Oct.	102	3162	7.	68.	215,016.	86	2831	17.	186.	526,566.
Nov.	109	3273	7.	63.	206,199.	88	2591	15.	176.	456,016.
Dec. 1930	109	3389	6.7	61.	206,729.	76	2753	19.	215.	551,895.
Jan. 1931	118	3667	6.7	56.	205,352.	54	2383	15.2	200.	476,600.
Feb.	123	3441	6.7	54.	185,814.	32	1530	12.	222.	339,660.
March	123	3811	6.7	54.	205,794.		994	8.	250.	248,500.
		84960			6,109,361.		231,449			15,671,256.

Average Oil Gas Ratio
71,000 cu. ft. per barrel

Average Oil Gas Ratio
67,000 cu. ft. per barrel.

A2ALZ 1
8A05
V. 2

ERTA LEGISLATURE LIBRARY
398 00207 5454

The Province of Alberta

IN THE MATTER OF THE PUBLIC
INQUIRIES ACT

—and—

IN THE MATTER OF a Commission, dated the
12th day of October, A.D. 1938, to inquire
into matters connected with Petroleum
and Petroleum Products

Commissioners:

The Honourable MR. JUSTICE McGILLIVRAY
(*Chairman*)

—and—

L. R. LIPSETT, ESQ.

Session:

CALGARY, Alberta EXHIBITS

VOLUME 2

EXHIBIT 36

(COPY)

OIL & GAS PRODUCTS LIMITED
300 Lancaster Building

Calgary, Alberta,
August 9, 1936.

G. E. Watt, Esq.,
British American Oil Company, Limited,
Sixth Avenue West,
Calgary, Alberta.

Dear Sir:-

For our plant in Turner Valley, we will require approximately one thousand barrels of crude oil per day during the next thirty days. It would be very much appreciated if you will let us know whether or not your company can supply us with this crude, and at what price.

We would also like to know, if this crude is available, at what point it could be obtained.

Your early advice in this regard would be appreciated.

Yours truly,

GAS & OIL PRODUCTS LIMITED.

"W.Kemp"

WK:BC

Secretary-Treasurer

Copy

GAS & OIL PRODUCTS LIMITED
300 Lancaster Building

CALGARY, Alberta.
August 17, 1938.

G. E. Watt, Esq.,
British American Oil Company Ltd.,
Sixth Avenue West,
Calgary, Alberta.

Dear Sir:-

Referring to our previous conversations with regard to Crude Oil Requirements for our Plant in Turner Valley.

This Company will be willing to take approximately one thousand barrels of Crude per day during the next thirty days on the following basis, namely, at Field Price for Gravity determined less two percent pipe line loss, and with a handling charge of two cents per barrel, deliveries to be invoiced to us on the 15th and the end of the month.

We understand that this Crude would be available for us at the Vulcan-Brown Well in L.S.D. 10 of Sec. 5, Twp.19, Rge. 2, W. 5th.

We would be pleased to hear from you in this connection at your earliest convenience.

Yours very truly,
GAS & OIL PRODUCTS LIMITED,
"W. KEMP"
Secretary-Treasurer.

WK/AA.

EXHIBIT 38

(COPY)

COPY OF ADVERTISEMENT -

APPEARING IN CALGARY HERALD, AUGUST 10th, 1938.
2 col. 4" (4 x 4)

WANTED

30,000 barrels Turner Valley Crude Oil for our Hartell Plant. Write or phone us at once.

GAS & OIL PRODUCTS LIMITED
300 Lancaster Building,
Calgary, Alberta.

Phones M.5218
M.5219

- - - - - -

EXHIBIT 39

(COPY)

209 - 6th Avenue West,
August 17, 1938.

Gas & Oil Products, Limited,
300 - Lancaster Building,
CALGARY, ALBERTA.

Gentlemen: Attention Mr. W. Kemp

Referring to your letter of August 17th.

I called Mr. F. A. Gaby on long distance and he authorized me to advise you that we are prepared to furnish crude to you from the Vulcan-Brown Well only, in L.S.D. 10 of Sec.5, Twp.19, Rge.2, W.5th, as per the arrangements stated in your letter of August 17th, with the proviso that if something unforeseen arises whereby we have only sufficient crude for our own purposes, we will have the privilege of cancelling this arrangement on three days' notice. This, of course, is not anticipated.

You will, of course, understand that there is always a possibility at the Vulcan-Brown Well of mechanical tie-ups, and at the present, I understand that they are pulling their tubing and acidizing almost immediately in order to get this work done before your pipe line is in operation so that you will not be tied up. You understand that we have no control over the actual operation of the well.

Our Superintendent is making arrangements with your Mr. Boyd in regard to working out satisfactory arrangements for gauging tanks, etc.

We are very pleased to be able to accommodate you in this matter, but we want to point out that the handling charge of 2¢ per barrel is being set for this particular situation and arrangement, and is not to be looked upon as a set handling charge for any other similar operation in the Turner Valley Field, and should any other arrangement have to be made, it will have to be judged on its own merits and the handling charge which has been agreed to in this case cannot be looked upon as a precedent.

Yours very truly,

G.E.Watt/JG.

Production Manager.

Exhibit 40

The following is a statement showing the purchases made from the British American Oil Company Limited for Gas & Oil Products Plant:-

	Well	Gravity	Bbls.	Price	Handling Charge	Total Cost
July	Brown 3	43.7	193	1.20	3.86	235.46
Aug.	Brown 3	44.2	51	1.22)	263.06	15,987.12
	Vulcan-Brown	42	4,214	1.18)		
		43	7,702	1.20)		
		44	1,186	1.22)		
Sept. 15	Vulcan-Brown	42	1,828	1.18)	212.90	13,019.42
		43	5,363	1.20)		
		44	3,454	1.22)		
Sept. 30	Vulcan-Brown	43	4,969	1.20	99.38	6,062.18
Oct.		Additional for 1% Pipe Line correction				194.32
			28,960		579.20	$35,498.50

....

Exhibit 41 1032

A map originally prepared by Dr. Link, and on which was superimposed by agreement Mr. Davies' areas "A" and "B" in different colours; also all of the drilling wells and all the producing wells either in or out of these areas, and also there is shown in different colours the acreage of the Royalite Oil Company.

EXHIBIT 42

(COPY)

December 21st, 1938.

Memorandum to Mr. J. H. McLeod:

Pipe-line Rates and average Daily Pumpings to the Refinery at Calgary for each rate period from commencement of operations of our Calgary-Turner Valley Delivery Line - November 24th, 1925 to December 31st, 1930.

For the initial period November 24th, 1925 to February 28th, 1927 no pipe line tariff was charged covering products pumped through the delivery system as the prices received on sales covered the products laid down at the Refinery. The average daily pumpings for the period December 1st, 1925 to February 28th, 1927 were 600 barrels.

For the period from March 1st, 1927 to December 31st, 1927, the pipe line tariff for deliveries to the Refinery was 5¢ per barrel and during that period the average daily pumpings to the Refinery were 786 barrels.

For the period from January 1st, 1928 to December 31st, 1928 the pipe line tariff on pumpings of Crude Naphtha to the Refinery was 5¢ per barrel. The tariff on Crude Oil, which included gathering, batching and pumping to the Refinery, was 25¢ per barrel and during that period the average daily pumpings to the Refinery were 1,200 barrels.

For the period from January 1st, 1929 to April 30th, 1929 the pipe line tariff on pumpings to the Refinery of Crude Naphtha was 5¢ per barrel. The tariff on Crude Oil, which included gathering, batching and pumping to the Refinery, was 30¢ per barrel, and during that period the average daily pumpings to the Refinery were 1,605 barrels.

For the period from May 1st, 1929 to December 31st, 1930, the pipe line tariff on all deliveries of crude oils and naphtha to the Refinery was 30¢ per barrel and during that period the average daily pumpings to the Refinery were 3,005 barrels.

December 19th, 1938.

Memorandum to Mr. J. H. McLeod:

Pipe Line Rates and average Daily Pumpings to the Refinery for each rate period from January 1st, 1931 to December 31st, 1932.

For the period 1st January, 1931 to 10th February, 1931 the pipe line tariff for gathering and delivery to Refinery at Calgary was 30¢ per barrel and during that period the average daily pumpings to the Refinery were 4,256 barrels.

For the period from 11th February, 1931 to 31st March, 1932, the pipe line tariff was 15¢ per barrel and during that period the average daily pumpings to the Refinery were 2,660 barrels.

For the period from 1st April, 1932 to 31st December, 1932, the pipe line tariff was .30¢ per barrel and the average daily pumpings to the Refinery were 1,477 barrels.

19th December, 1938.

Memorandum to Mr. J. H. McLeod:

Pipe Line Rates and average Daily Pumpings to the Refinery for each rate period from January 1st, 1933 to November 30th, 1938.

For the period January 1st, 1933 to 30th September, 1933, the pipe line rate was 30¢ per barrel and during that period the average daily pumpings to the Refinery were 1,479 barrels.

For the period October 1st, 1933 to 3rd October 1936, the pipe line rate was 25¢ per barrel and during that period the average daily pumpings to the Refinery were 2,208 barrels.

For the period 4th October 1936 to 31st August 1937, the pipe line rate was 22½¢ per barrel and during that period the average daily pumpings to the Refinery were 4,529 barrels.

For the period 1st September, 1937 to 4th January 1938 the pipe line rate was 17¢ per barrel and during that period the average daily pumpings to the Refinery were 9,789 barrels.

For the period 5th January, 1938 to 30th November 1938, the pipe line rate was 15¢ per barrel and during that period the average daily pumpings to the Refinery were 16,485 barrels.

Exhibit 43

1034

ROYALITE OIL COMPANY LIMITED

COST OF INVESTMENT IN PIPE LINE ASSETS TO SEPTEMBER 30, 1938.

Trunk Lines, including Equipment and Structures in connection therewith	$ 630,722.52
Gathering Lines	280,774.59
Pumps and Tanks	16,292.48
Tanks and Tank Farm	182,394.27
Pump Houses	31,628.33
Sundry Equipment and Structures	28,576.95
Automotive Equipment	26,500.19
Incomplete Construction	109,479.15
	$1,306,368.48

NOTE:

In addition to the above direct expenditures, there has been expended on Utilities and Service Units to September 30,1938 the amount of $1,125,366.78. These services are for the benefit of all the operations of the Company, including the Pipe Line Department.

....

Exhibit 44

1035

Balance Sheets of the Royalite Oil Company for the years 1921 to 1937 inclusive.

....

ALZ 1
A05
V.4

LEGISLATURE LIBRARY
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The Province of Alberta

IN THE MATTER OF THE PUBLIC
INQUIRIES ACT

—and—

IN THE MATTER OF a Commission, dated the
12th day of October, A.D. 1938, to inquire
into matters connected with Petroleum
and Petroleum Products

Commissioners:

The Honourable MR. JUSTICE McGILLIVRAY
(*Chairman*)

—and—

L. R. LIPSETT, ESQ.

Session:

CALGARY, Alberta EXHIBITS

VOLUME 4

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BOX 84

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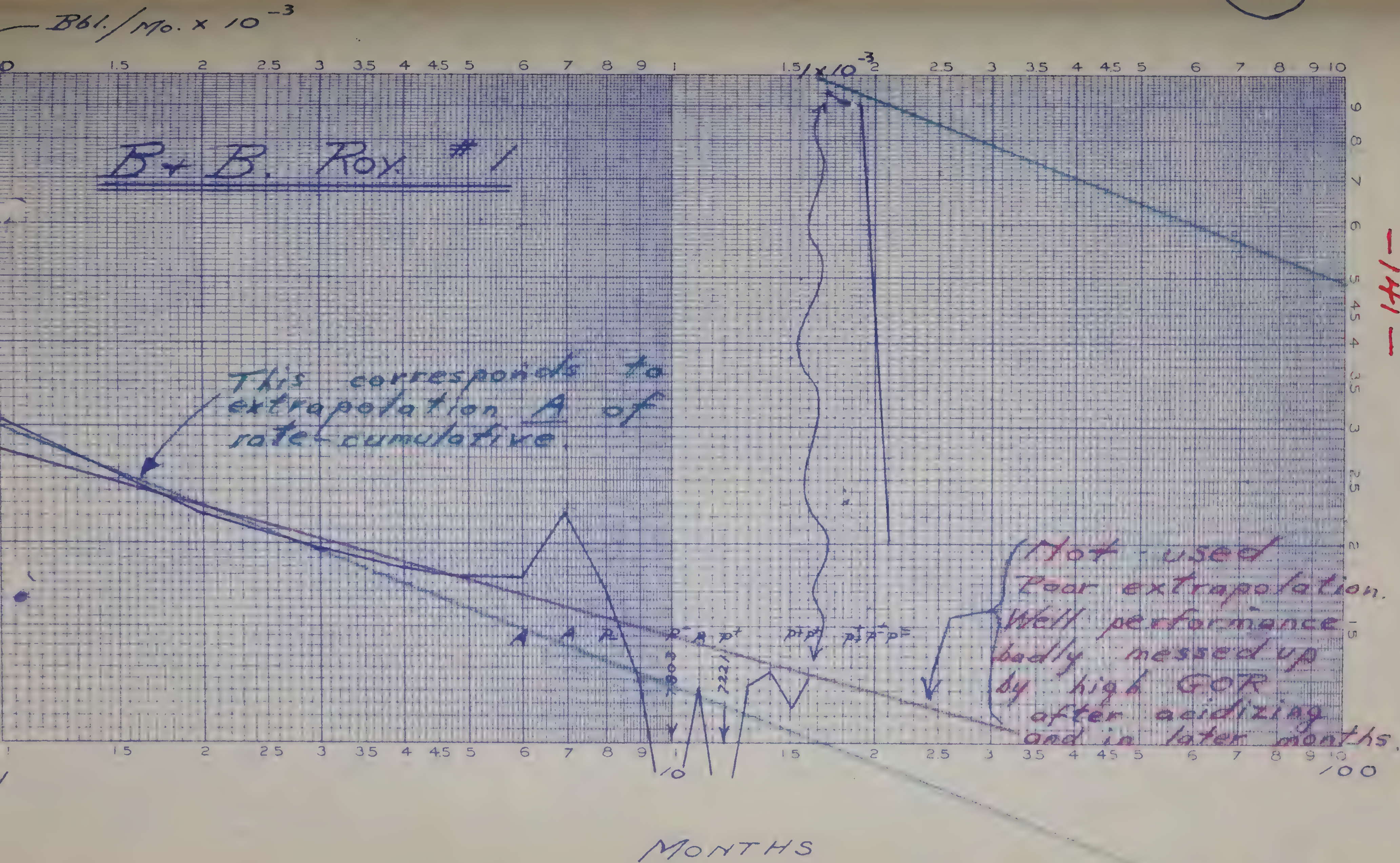
Record
Page.
1085

EXHIBIT 47

B. and B. ROYALTIES NO. 1

1937		Barrels	Gas Oil Ratio
	F	30,878	5,460
	M	22,283	7,100
		53,161	
	A	19,614	6,960
		72,775	
	M	18,417	7,610
		91,192	
	J	17,815	6,690
		109,007	
	J	17,911	6,080
		126,918	
	A	22,771	7,340
		149,689	
	S	17,444	8,960
		167,133	
	O	12,488	12,400
		179,621	
	N	7,803	10,550
		187,424	
	D	12,110	6,000
		199,534	
1938			
	J	7,221	6,400
		206,755	
	F	12,215	5,740
		218,970	
	M	12,857	6,170
		231,827	
	A	11,412	7,780
		243,239	
	M	12,674	8,750
		255,913	
	J	9,406	13,000
		265,319	
	J	9,134	12,600
		274,453	
	A	9,056	13,800
		283,509	
	S	5,006	26,000
		288,515	
	O	2,019	19,400
		290,534	



B+B. Roy #1

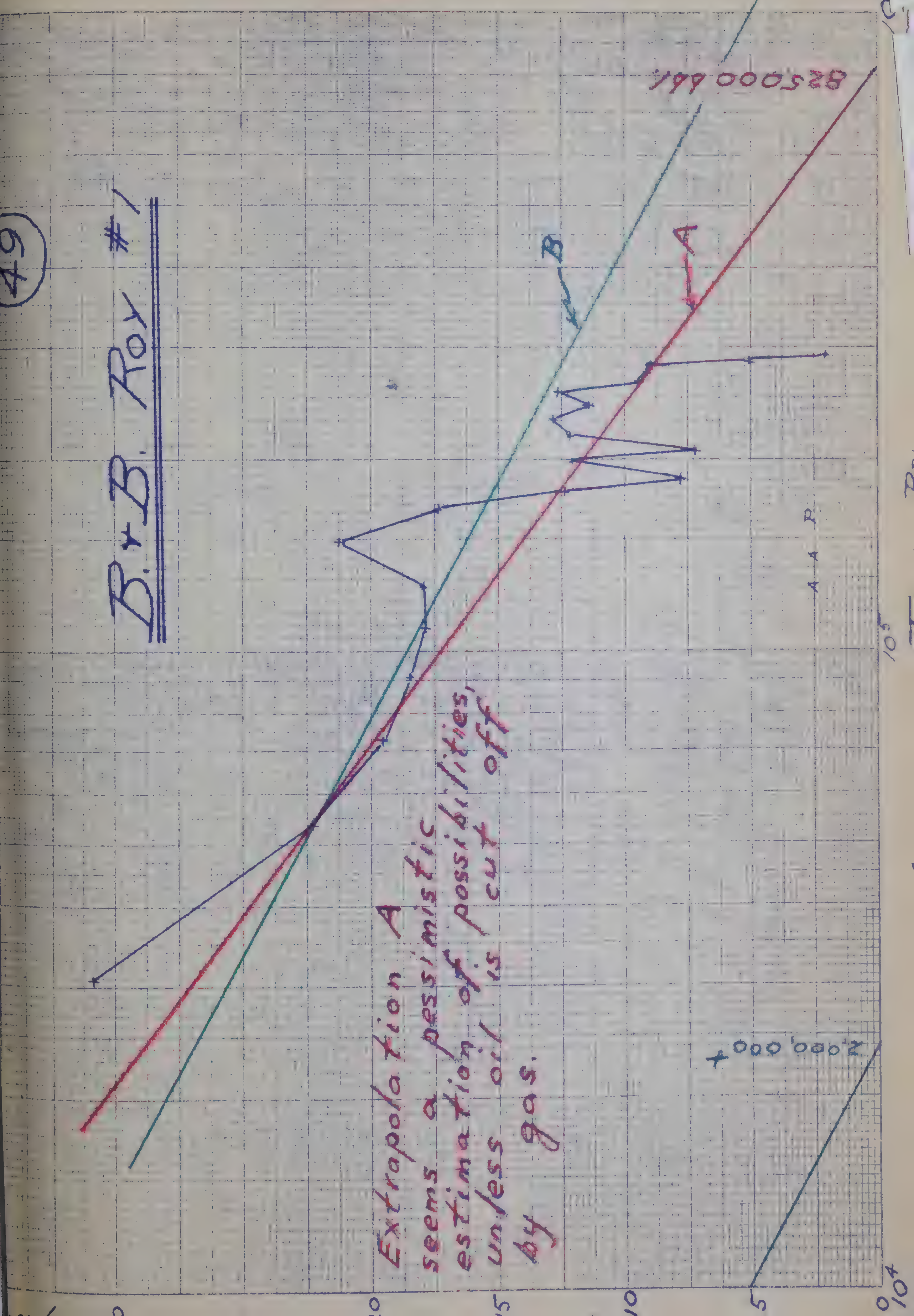
This corresponds to extrapolation A of rate-cumulative.

Not used
Poor extrapolation.
Well performance badly messed up by high GOR after acidizing and in later months.

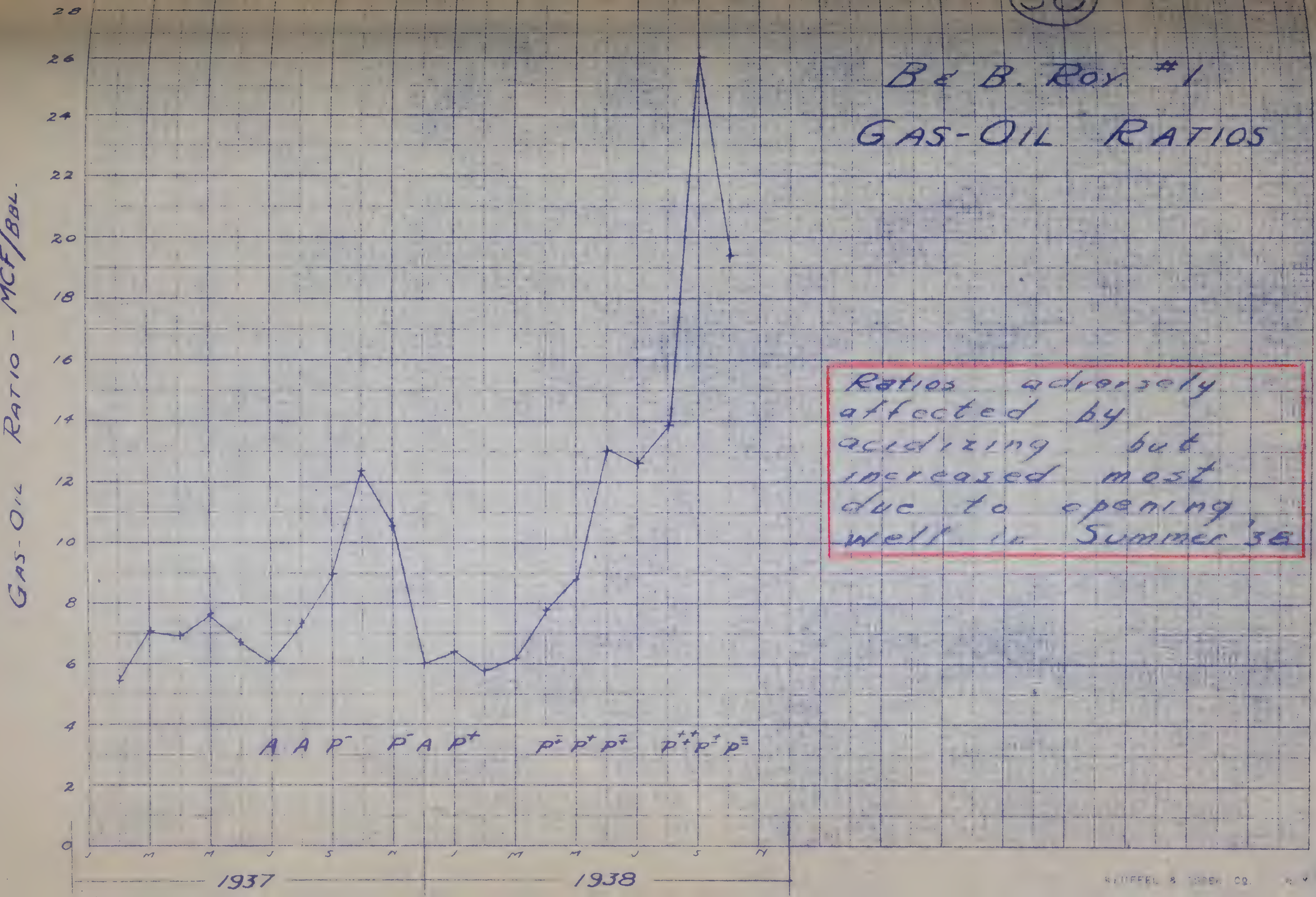
1/7/39

(49)

B. B. Roy #1



Extrapolation A seems a pessimistic estimation of possibilities, unless oil is cut off by gas.

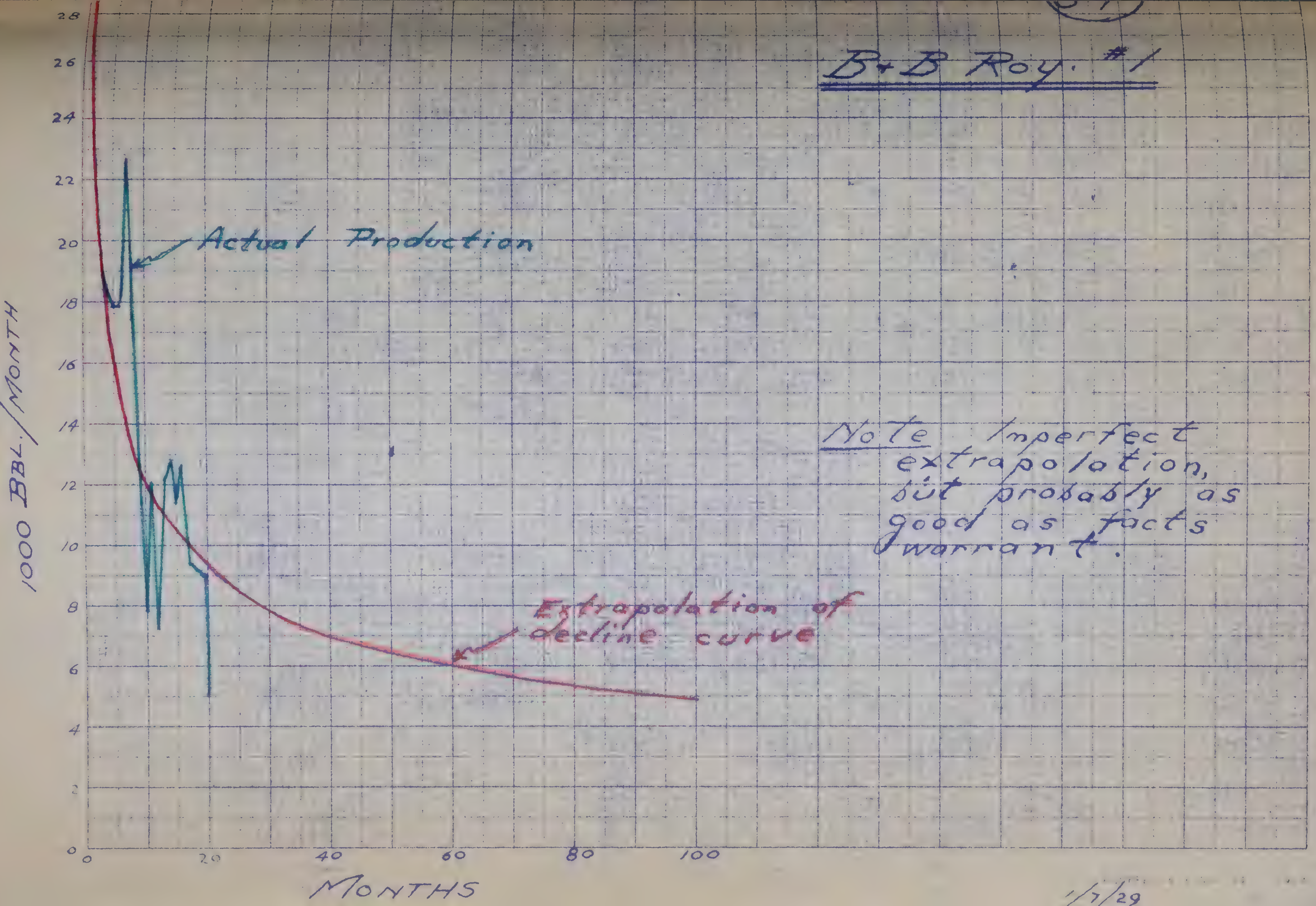


B & B. Roy #1

GAS-OIL RATIOS

Ratios adversely affected by acidizing but increased most due to opening well in Summer '38

KEUFFEL & ESSER CO. N.Y.
100% RAG PAPER



B+B Roy. #1

Note Imperfect extrapolation, but probably as good as facts warrant.

1/7/29

EXHIBIT 52

1937		BROWN NO. 1	BROWN NO. 2
	S	3,044	1,881
	O	6,380	7,144
		9,424	9,025
	N	14,187	5,980
		23,611	15,005
	D	20,287	7,188
		43,898	22,193
1938			
	J	29,520	10,363
		73,418	32,556
	F	17,279	12,410
		90,697	44,966
	M	24,240	13,137
		114,937	58,103
	A	20,658	11,350
		135,595	69,453
	M	26,172	13,868
		161,767	83,321
	J	19,284	11,668
		181,051	94,989
	J	20,705	13,389
		201,756	108,378
	A	21,076	16,039
		222,832	124,417
	S	13,088	19,611
		235,920	144,028
	O	6,199	15,454
		242,119	159,482

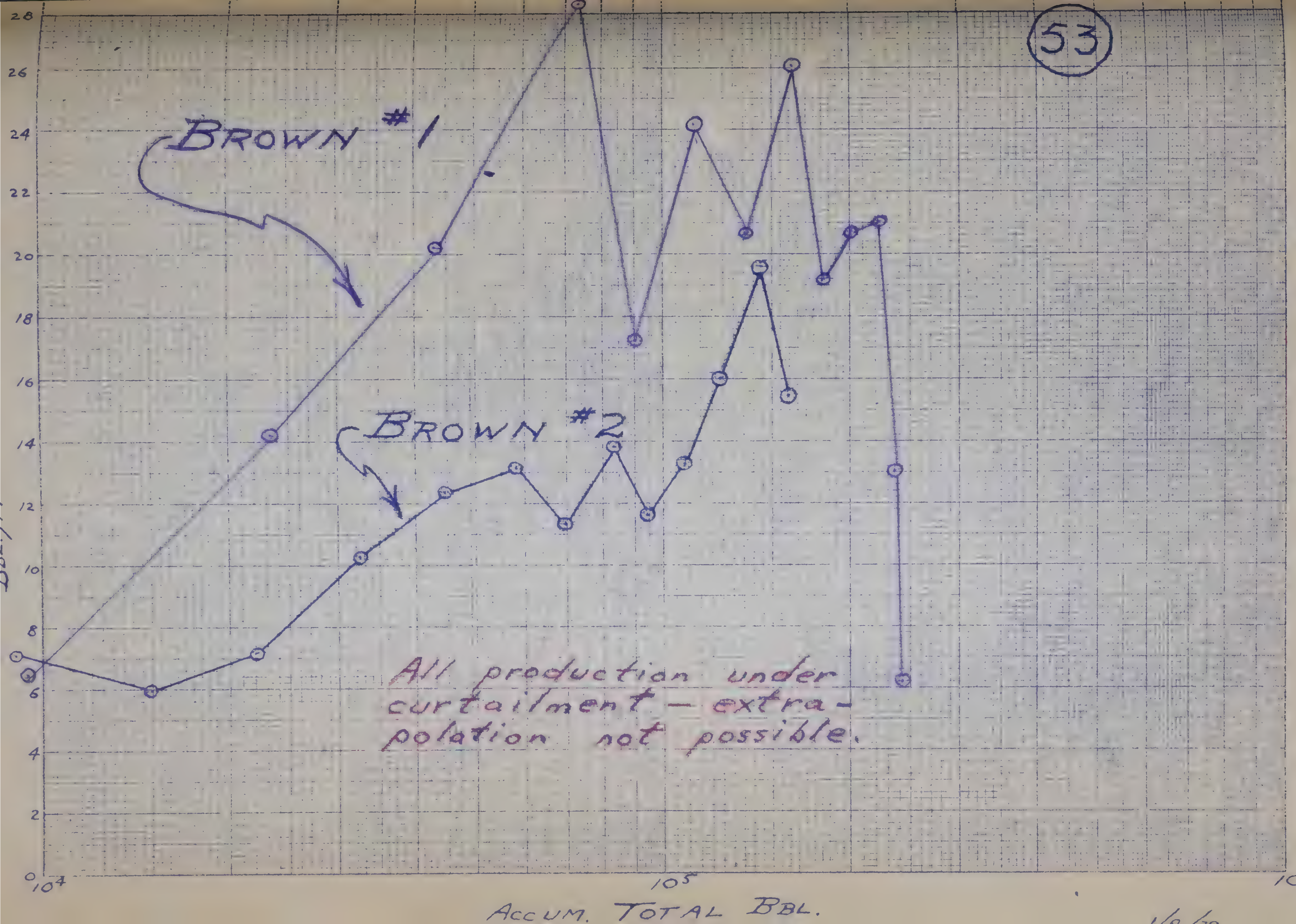
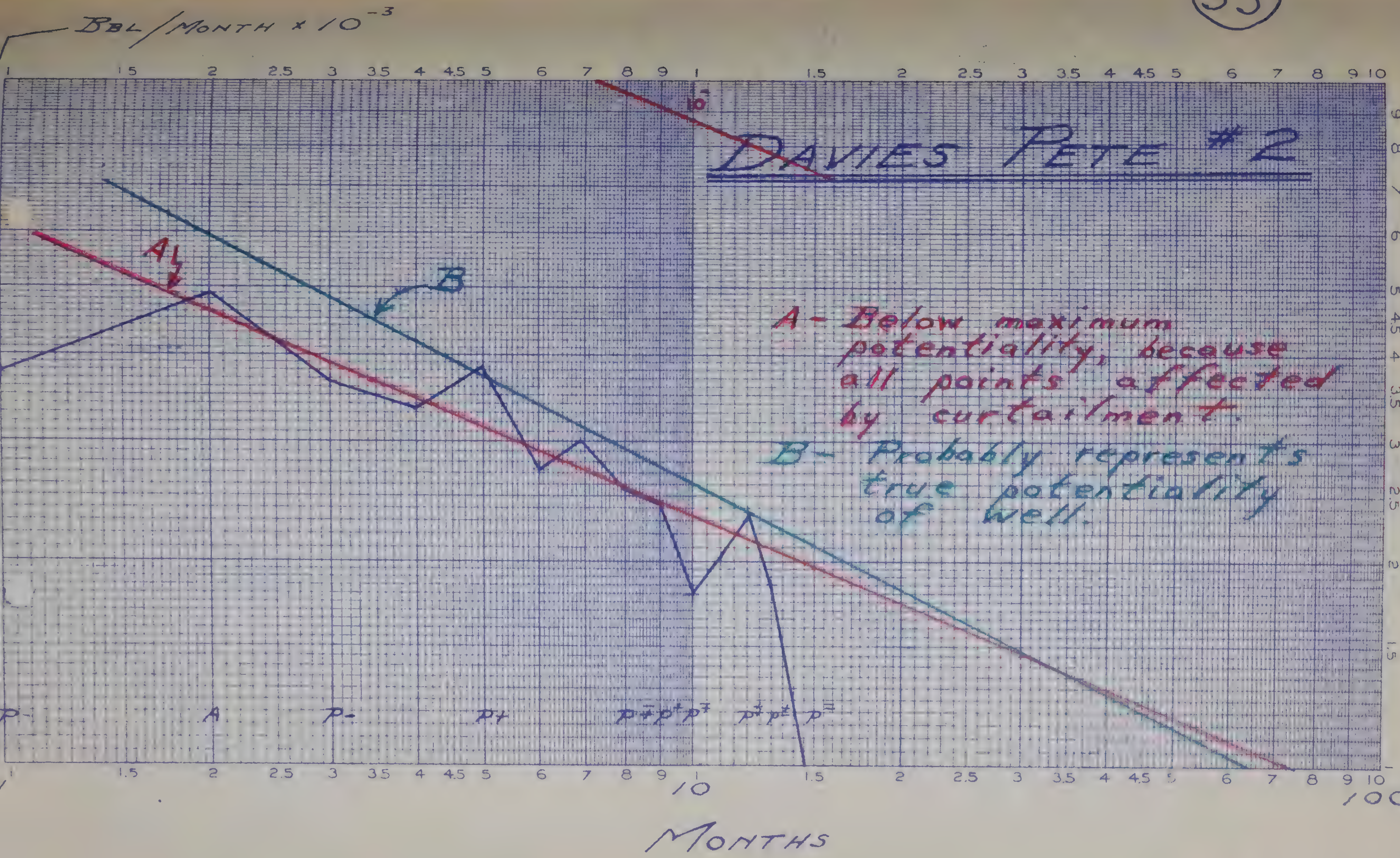

53
BROWN #1
BROWN #2
All production under curtailment – extrapolation not possible.
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
10^4
10^5
10^6
ACCUM. TOTAL BBL.

EXHIBIT 54

DAVIES No. 2

1937	S	37,829
	O	48,992
		86,821
	N	36,594
		123,415
	D	33,299
		156,714
	J	38,386
		195,100
	F	27,187
		222,287
	M	30,193
		252,480
	A	25,249
		277,729
	M	24,788
		302,517
	J	17,955
		320,472
	J	20,191
		340,663
	A	23,743
		364,406
	S	18,582
		382,988
	O	10,071
		393,059

(55)



DAVIES PETE #2

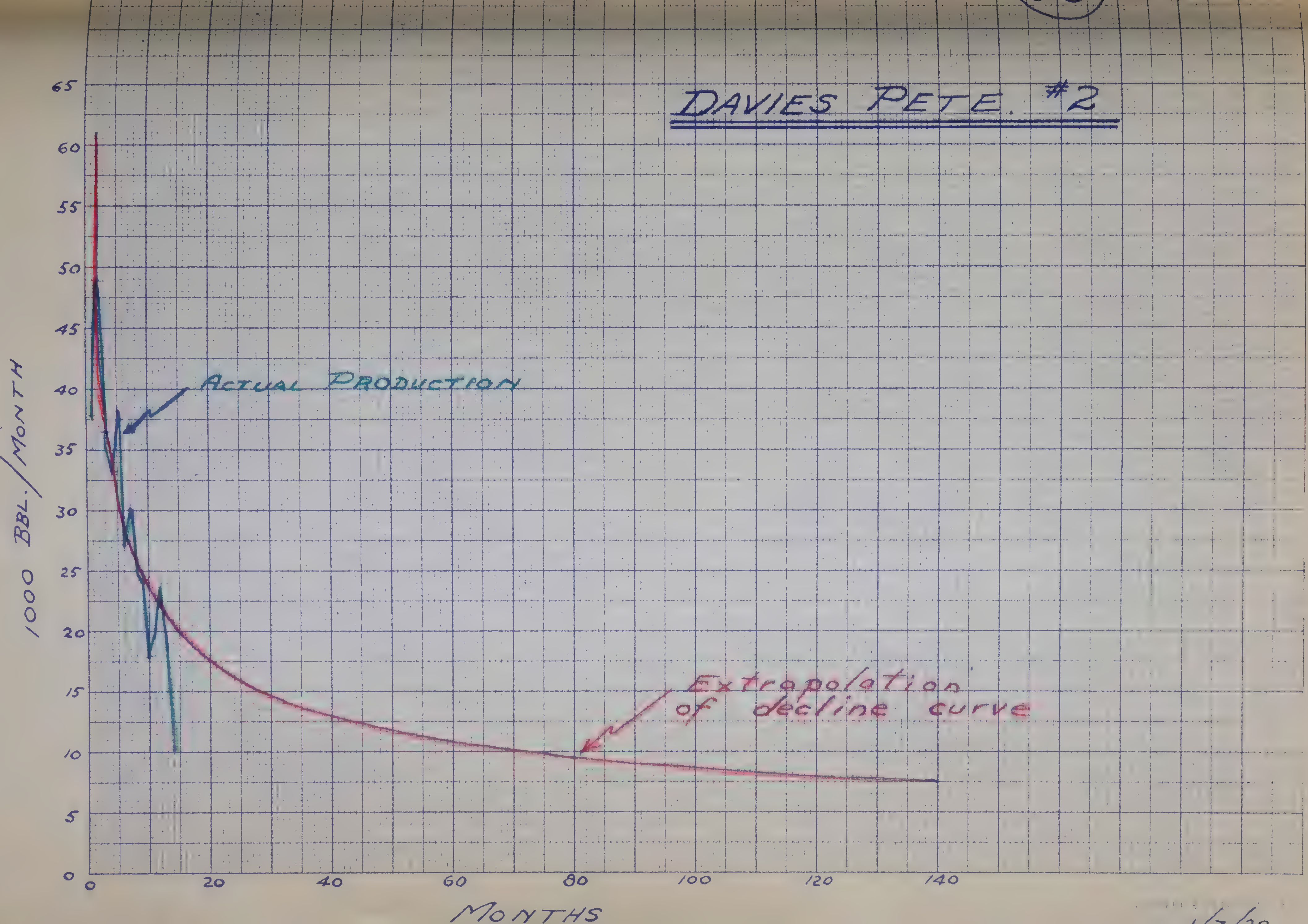
A- Below maximum potentiality, because all points affected by curtailment.

B- Probably represents true potentiality of well.

Months

1/7/29

DAVIES PETE. #2



10 X 10 TO THE HALF INCH.
PRINTED IN U. S. A.
100% RAG PAPER

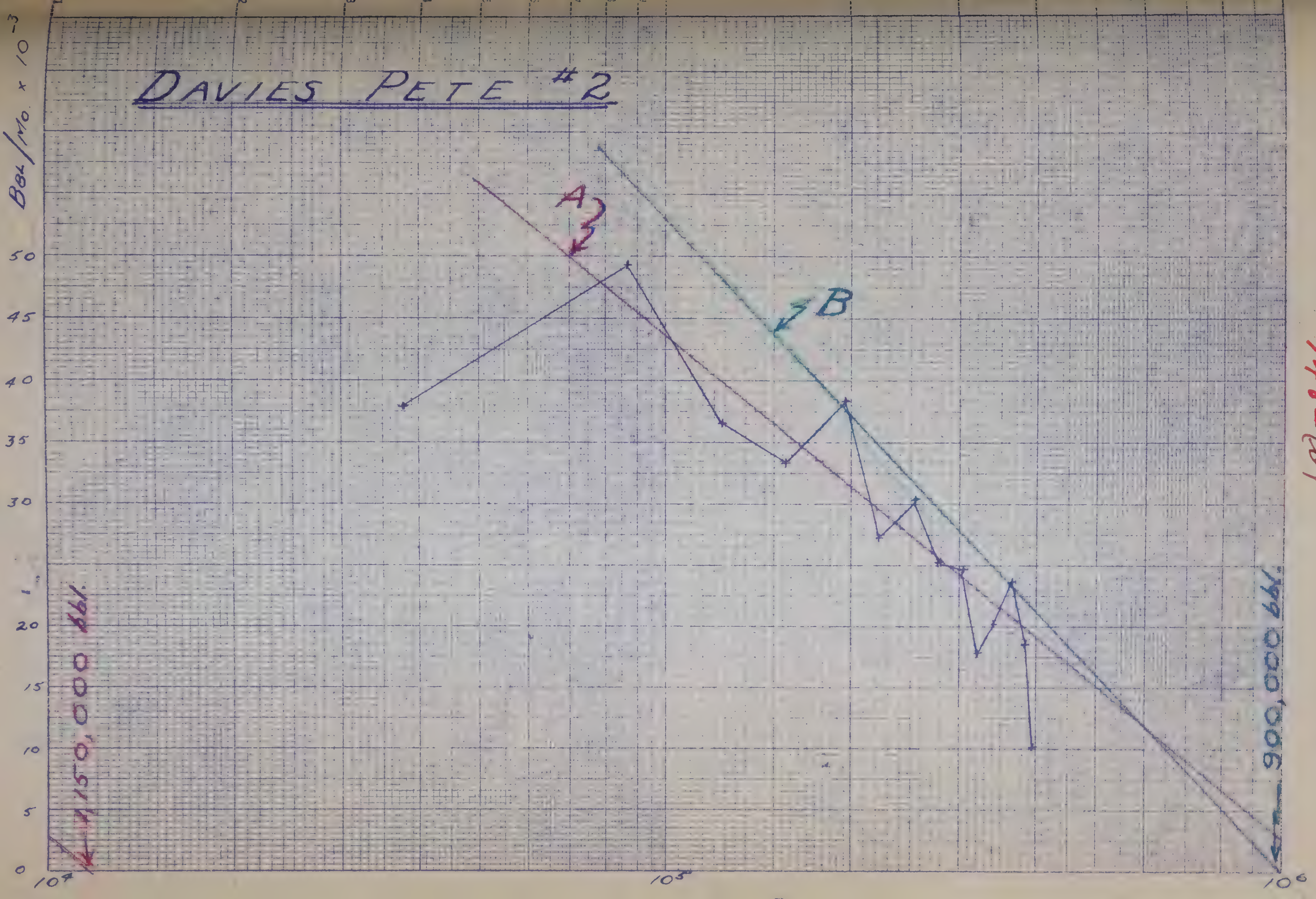
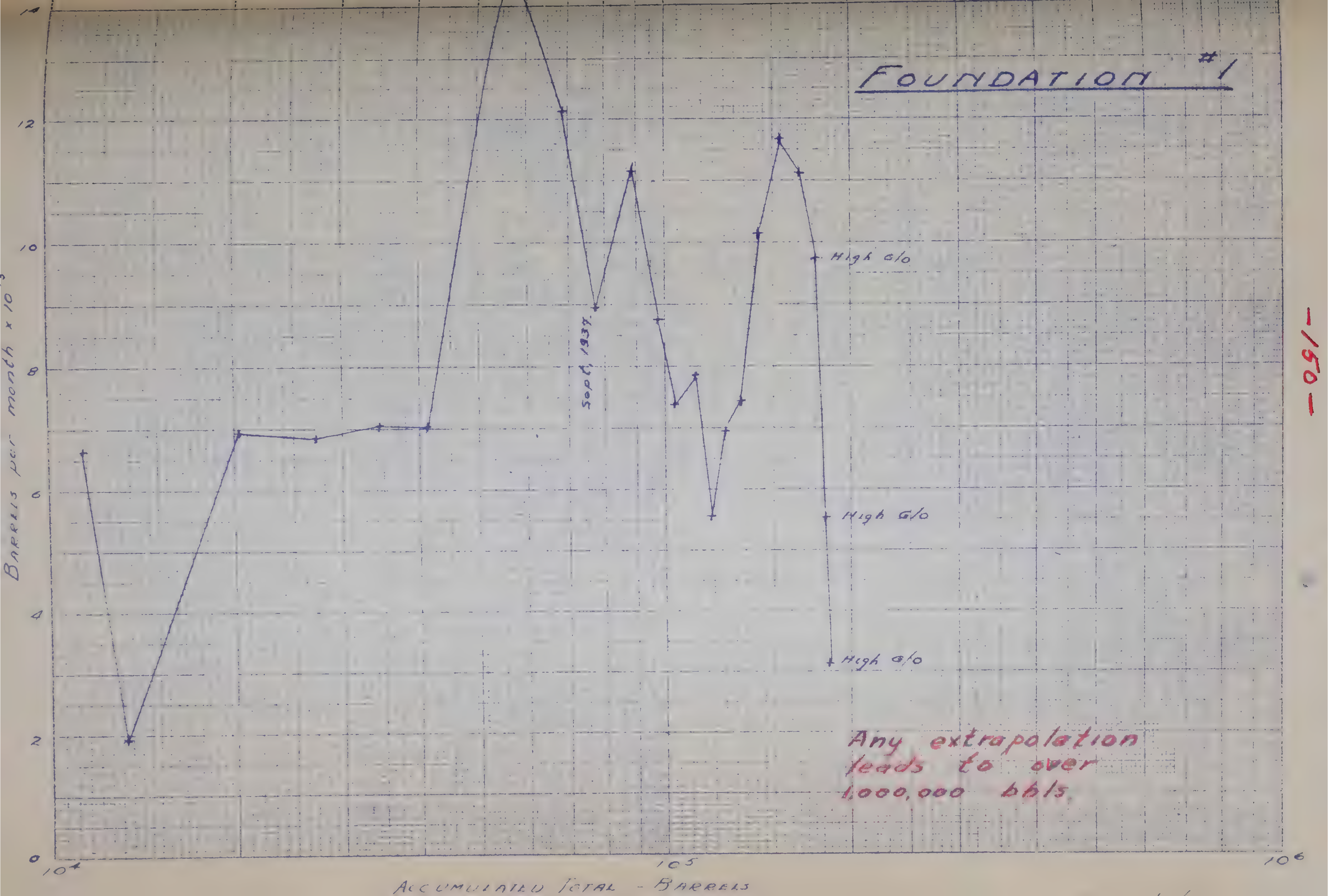

DAVIES PETE #2

EXHIBIT 58

Record Page 1090

FOUNDATION No. 1

		Barrels	Gas Oil Ratio
1936	D	4,737	4,600
1937	J	6,646 11,383	4,600
	F	1,903 13,286	3,400
	M	6,937 20,223	3,900
	A	6,861 27,084	3,900
	M	7,041 34,125	4,100
	J	7,030 41,155	3,800
	J	15,002 56,157	6,800
	A	12,201 68,358	6,200
	S	8,981 77,339	6,000
	O	11,348 88,687	4,600
	N	8,733 97,420	2,500
	D	7,386 104,806	5,500
1938	J	7,846 112,652	2,200
	F	5,574 118,226	4,000
	M	6,908 125,134	2,500
	A	7,423 132,557	3,500
	M	10,314 142,871	3,900
	J	11,785 154,656	4,300
	J	11,146 165,802	6,000
	A	9,718 175,520	17,400
	S	5,507 181,027	18,800
	O	3,120 184,147	12,600



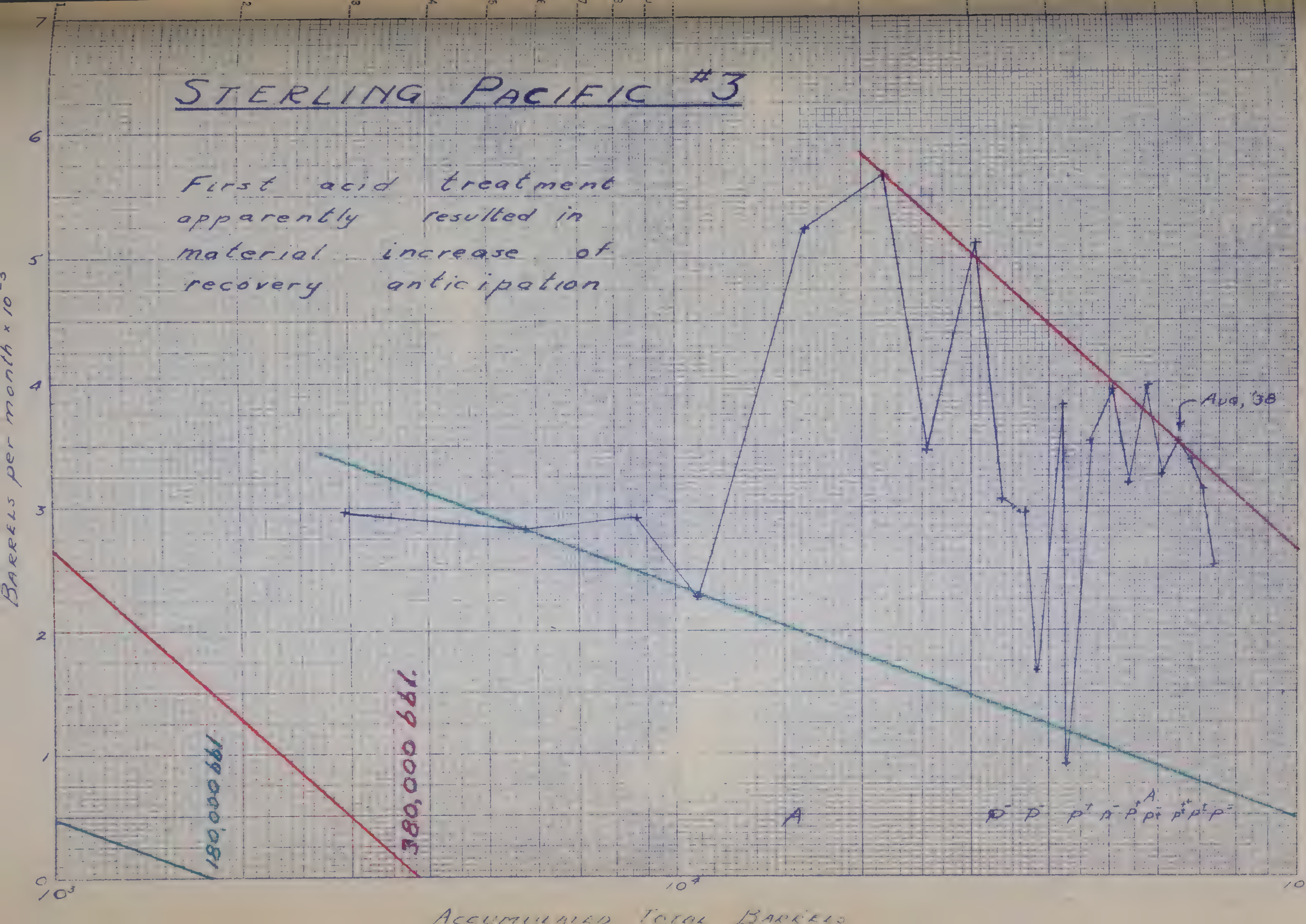
FOUNDATION #1

Any extrapolation leads to over 1,000,000 bbls.

EXHIBIT 60

STERLING PACIFIC No. 3

1937	J	2,969	
	F	2,789	5,758
	M	2,918	8,676
	A	2,297	10,973
	M	5,234	16,207
	J	5,666	21,873
	J	3,456	25,329
	A	5,123	30,452
	S	3,109	33,561
	O	2,957	36,518
	N	1.678	38,196
	D	3,810	42,006
1938	J	947	42,953
	F	3,528	46,481
	M	3,947	50,428
	A	3,198	53,626
	M	3,965	57,591
	J	3,266	60,857
	J	3,527	64,384
	A	3,376	67,760
	S	3,144	70,904
	O	2,506	73,410



STERLING PACIFIC #3

First acid treatment apparently resulted in material increase of recovery anticipation

EXHIBIT 62

STERLING PACIFIC No. 4

1937			
	M	12,135	
	A	30,041	42,176
	M	29,363	71,539
	J	33,948	105,487
	J	43,259	148,746
	A	37,816	186,562
	S	34,774	221,336
	C	31,648	252,984
	N	18,109	271,093
	D	20,769	291,862
1938			
	J	21,821	313,683
	F	24,189	337,872
	M	25,757	363,629
	A	21,162	384,791
	M	14,975	399,766
	J	9,161	408,927
	J	10,209	419,136
	A	13,386	432,522
	S	15,252	447,774
	O	8,866	456,640

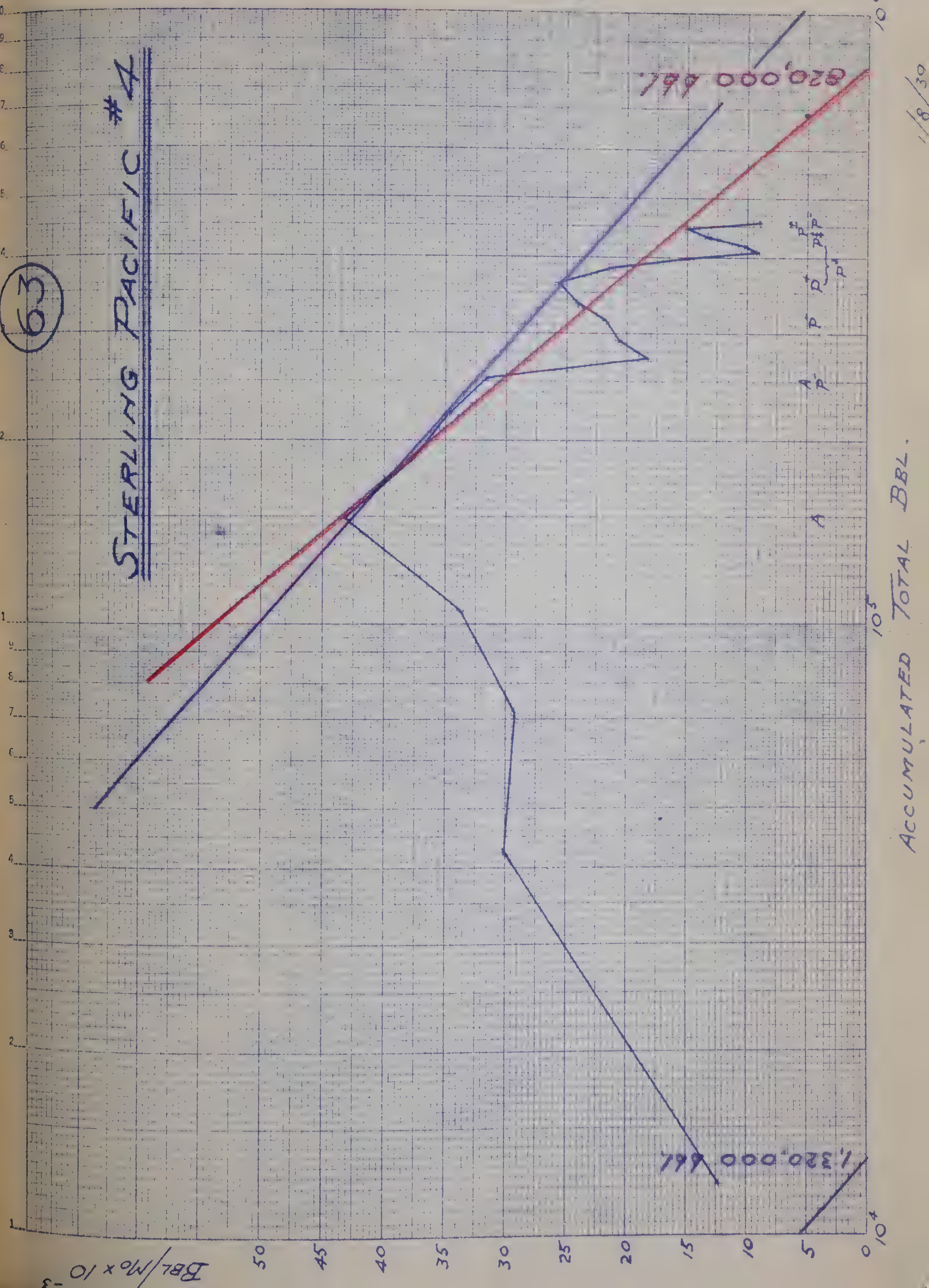

63
STERLING PACIFIC #4
820,000 bbl.
1,320,000 bbl.
ACCUMULATED TOTAL BBL.
BBL/Mo × 10^-3
1/8/30
P
A
50
45
40
35
30
25
20
15
10
5
0
10^4
10^5
10^6

EXHIBIT 64

Record Page
1091

STERLING PACIFIC No. 5

1937		
	A	39,276
	S	37,238
		76,514
	O	32,791
		109,305
	N	17,915
		127,220
	D	17,372
		144,592
1938		
	J	22,778
		167,370
	F	17,932
		185,302
	M	21,465
		206,767
	A	16,979
		223,746
	M	16,984
		240,730
	J	13,028
		253,758
	J	14,645
		268,403
	A	17,798
		286,201
	S	15,475
		301,676
	O	9,070
		310,746

STERLING PACIFIC #5

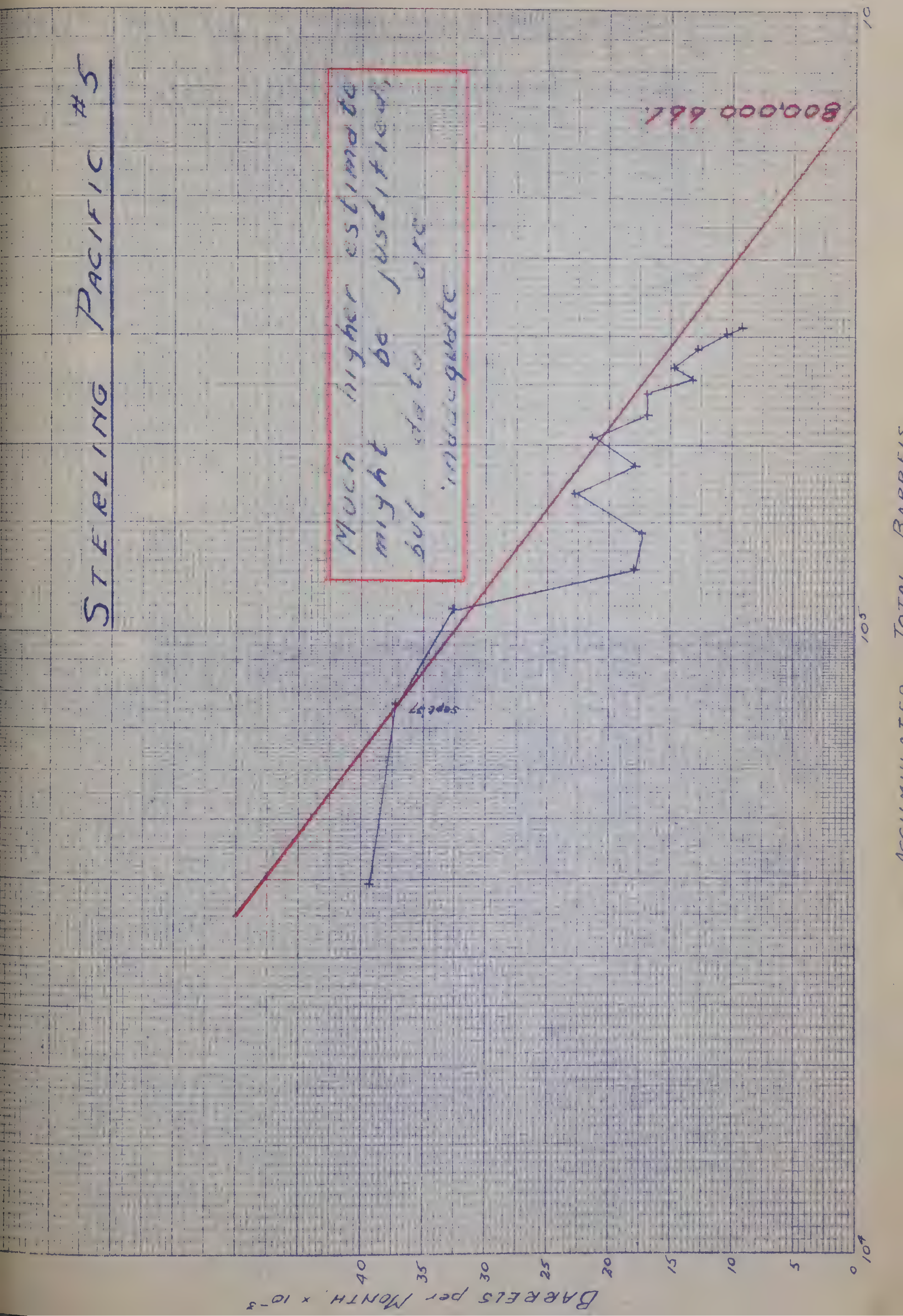


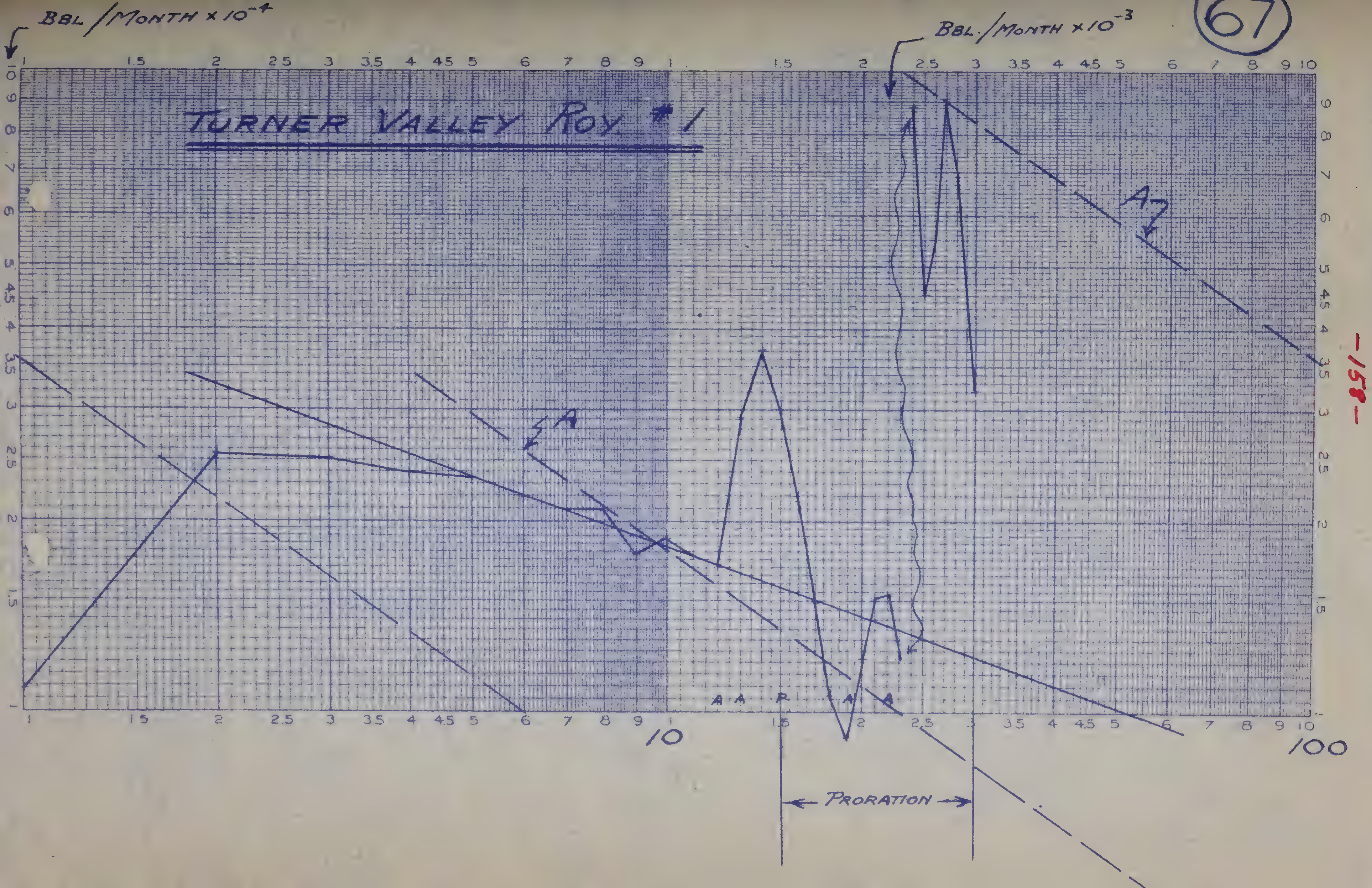
EXHIBIT 66

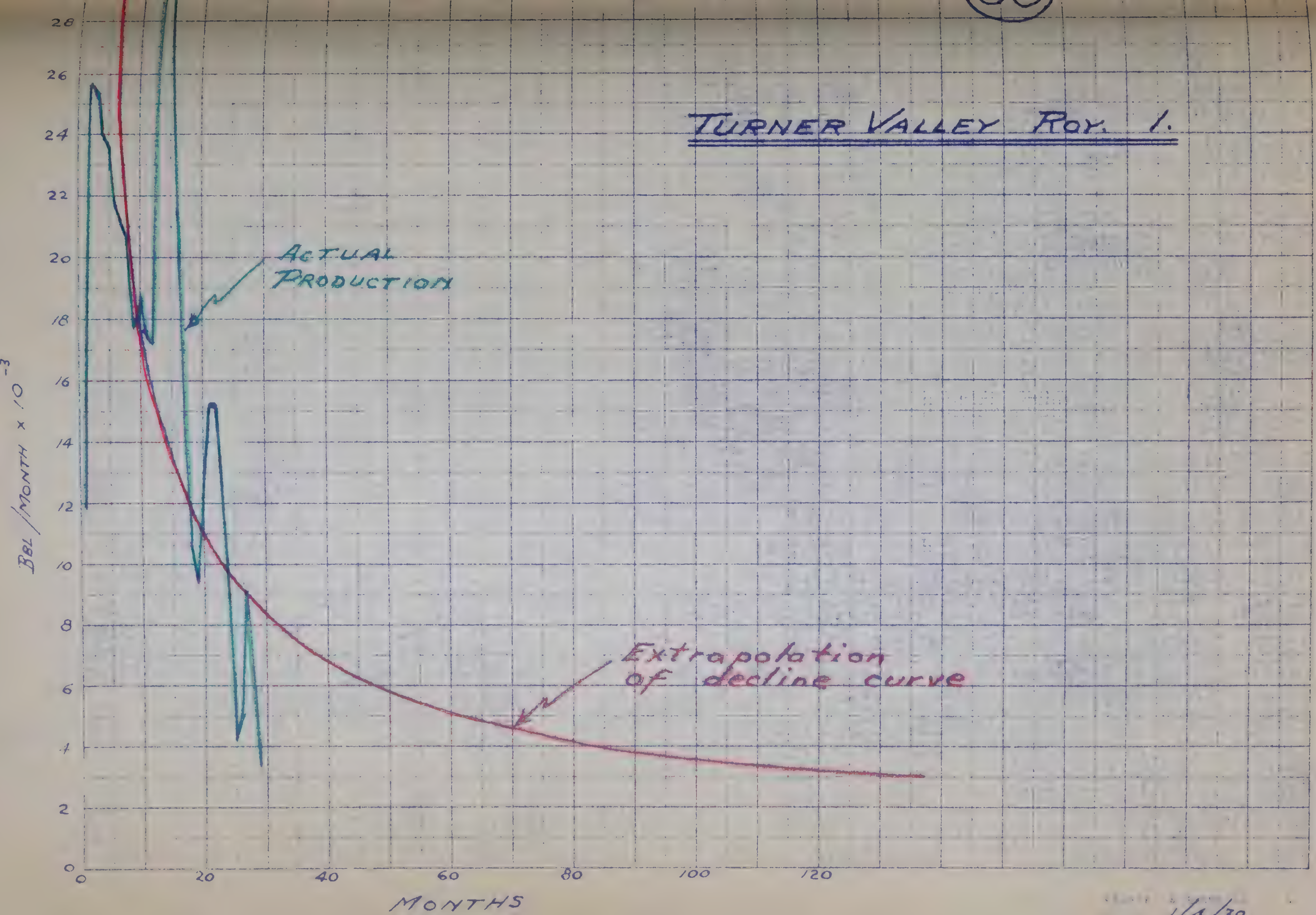
Record Page 1091

TURNER VALLEY ROYALTIES No.1

1936	J	11,947		
	J	25,693	37,640	
	A	25,328	62,968	
	S	23,959	86,927	
	O	23,522	110,449	
	N	21,768	132,217	
	D	21,047	153,264	
1937	J	20,762	174,026	
	F	17,738	191,764	
	M	18,724	210,488	
	A	17,604	228,092	
	M	17,202	245,294	
	J	29,088	274,382	(A)
	J	37,286	311,668	(A)
	A	29,618	341,286	
	S	21,486	362,772	(P-)
	O	14,877	377,649	
	N	10,682	388,331	(P-)
	D	9,428	397,759	(A)
1938	J	12,155	409,914	(P+)
	F	15,259	425,173	
	M	15,490	440,663	(A)
	A	12,414	453,077	(P+)
	M	8,862	461,939	(P̄+)
	J	4,288	466,227	(P̄+)
	J	5,505	471,732	
	A	9,049	480,781	(P+ + +)
	S	5,970	486,751	(P+)
	O	3,344	490,095	(P̄=)

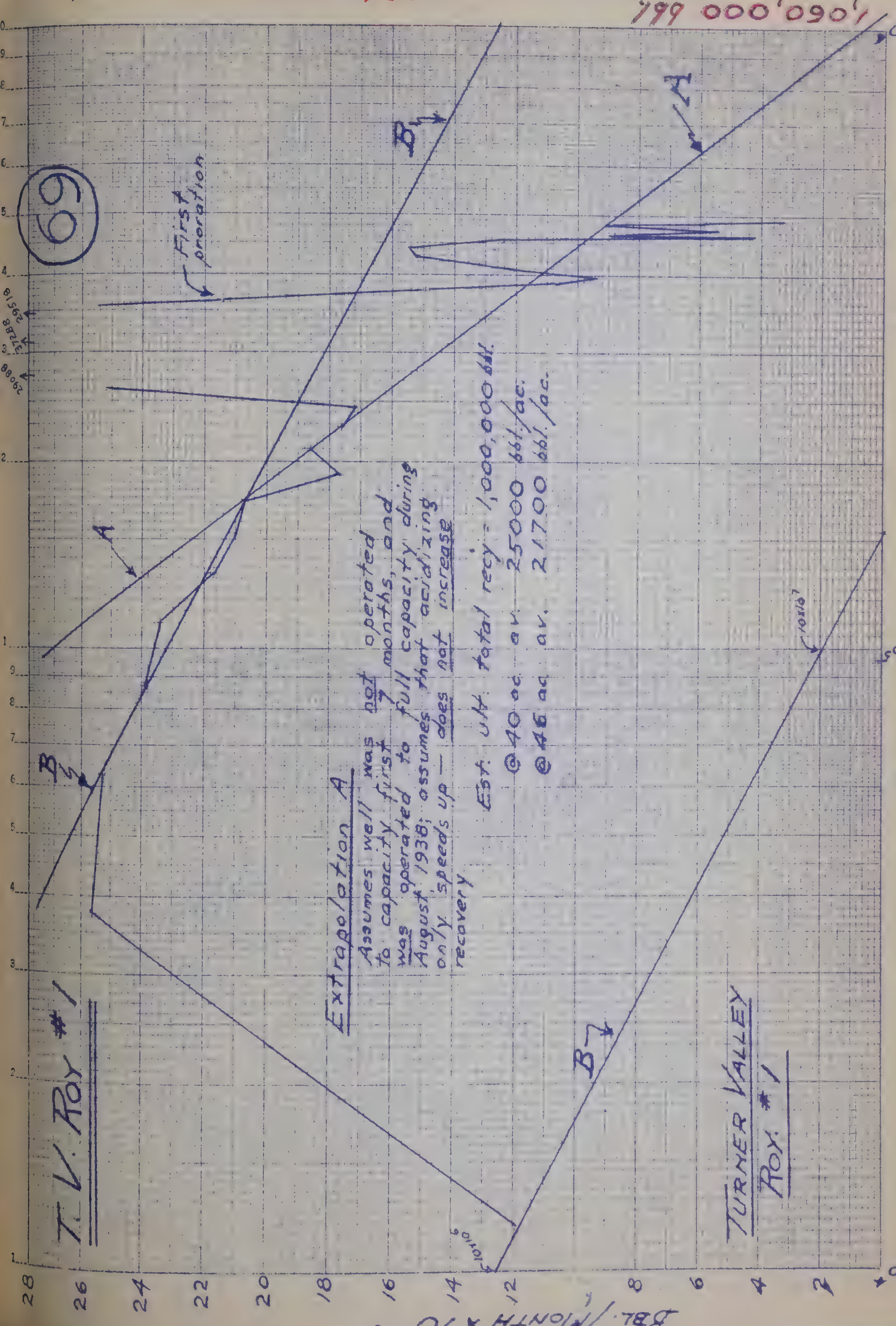
67


TURNER VALLEY ROY #1
BBL/MONTH x 10⁻⁴
BBL./MONTH x 10⁻³
1
1.5
2
2.5
3
3.5
4
4.5
5
6
7
8
9
10
100
A
A
A A P A A
PRORATION


TURNER VALLEY ROY. 1.
ACTUAL PRODUCTION
Extrapolation of decline curve
BBL /MONTH x 10⁻³
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
0
20
40
60
80
100
120
MONTHS

1/4/39

1/4/39



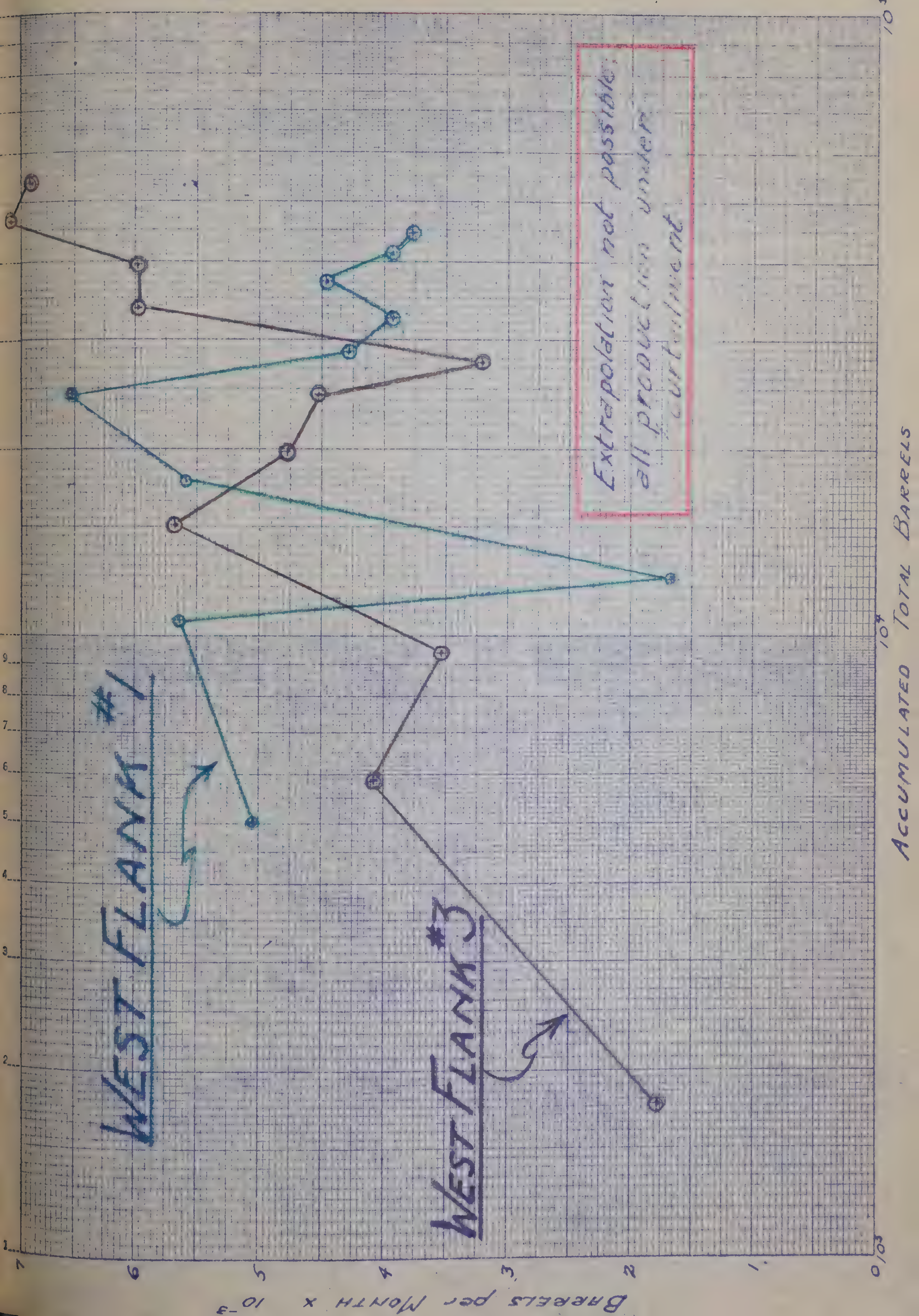
Extrapolation A

Assumes well was not operated to capacity first 7 months, and was operated to full capacity during August 1938; assumes that acidizing only speeds up — does not increase recovery

Est. ult. total recy = 1,000,000 bbl.
@ 40 ac. av. 25000 bbl./ac.
@ 46 ac. av. 21700 bbl./ac.

EXHIBIT 70

		WESTFLANK No. 1	WESTFLANK No. 3
1937	D	5,040	1,764
1938	J	5,645	4,077
		10,685	5,841
	F	---	3,545
		10,685	9,386
	M	1,668	5,680
		12,353	15,066
	A	5,588	4,778
		17,941	19,844
	M	6,521	4,526
		24,462	24,370
	J	4,275	3,202
		28,737	27,572
	J	3,932	5,994
		32,669	33,566
	A	4,496	5,945
		37,165	39,511
	S	3,947	7,104
		41,112	46,615
	O	3,767	6,908
		44,879	53,523



Extrapolation not possible: all production under curtailment

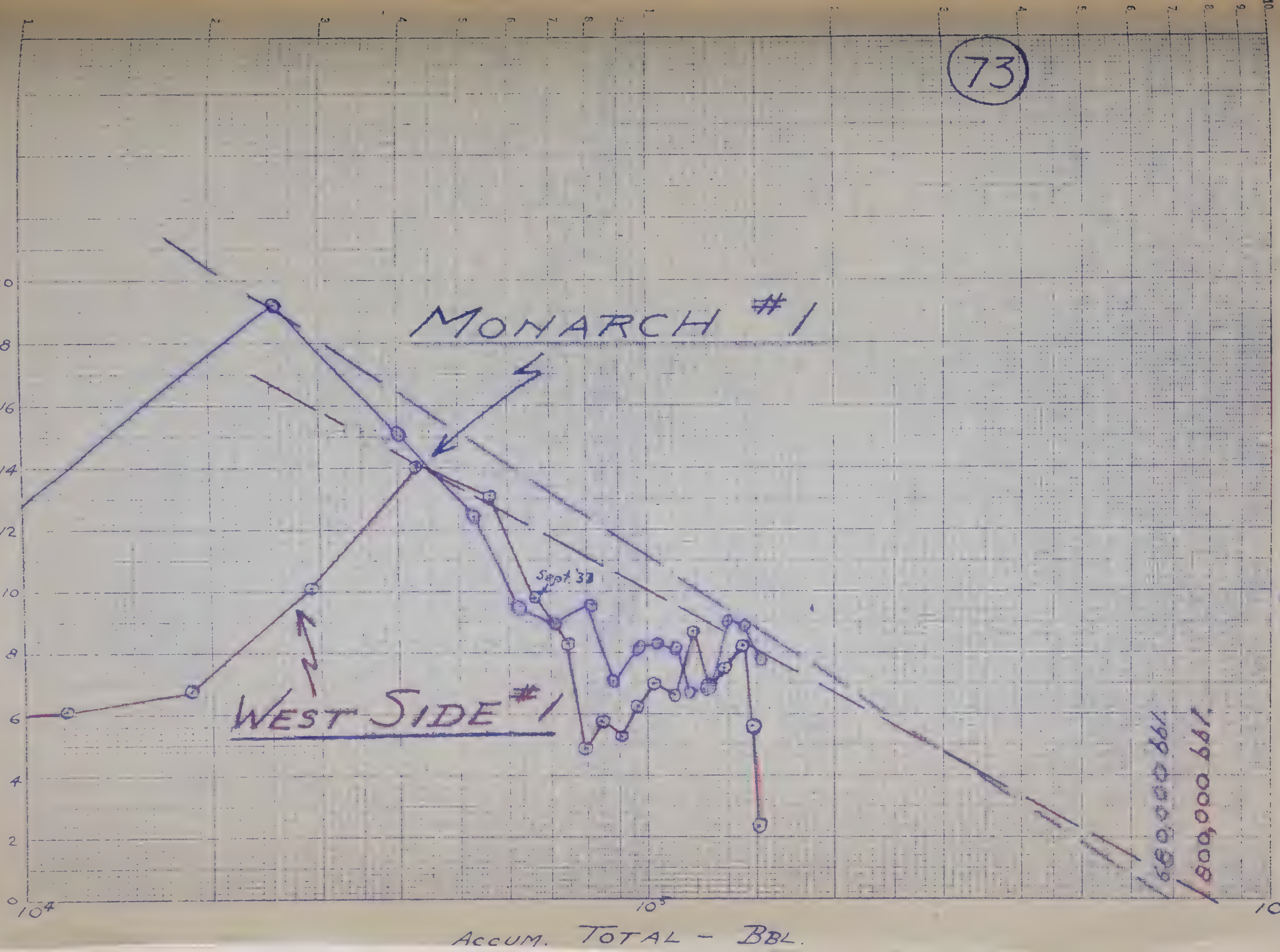
EXHIBIT 72

MONARCH No. 1

1937	J	6,395	
	A	19,228	25,623
	S	15,062	40,685
	O	12,400	53,085
	N	9,520	62,605
	D	8,973	71,578
1938	J	9,619	81,197
	F	7,061	88,258
	M	8,226	96,484
	A	8,254	104,738
	M	8,193	112,931
	J	6,681	119,612
	J	6,915	126,527
	A	9,062	135,589
	S	8,859	144,448
	O	7,704	152,152

WESTSIDE No. 1

1937	M	5,714	
	A	6,046	11,760
	M	6,750	18,510
	J	10,505	29,015
	J	14,067	43,082
	A	13,184	56,266
	S	9,779	66,045
	O	8,298	74,343
	N	4,840	79,183
	D	5,799	84,982
1938	J	5,268	90,250
	F	6,253	96,503
	M	7,009	103,512
	A	6,613	110,125
	M	8,721	118,846
	J	6,911	125,757
	J	7,566	133,323
	A	9,246	142,569
	S	5,646	148,215
		2,290	150,505


73
MONARCH #1
WEST SIDE #1
Sept. 33
660,000 bbl.
800,000 bbl.
ACCUM. TOTAL - BBL.
10^4
10^5
10^6
0
2
4
6
8
10
12
14
16
18
20
1
2
3
4
5
6
7
8
9
10

		Record Page
EXHIBIT 76 -	Copy Telegram dated January 10th, 1939, G.H.Smith, Toronto, To H.G. Nolan, Calgary, in reference to pipeline rates and facilities shown in full at page 2002 of the record.	2002
EXHIBIT 77 -	Copy Telegram dated January 10th, 1939, from H.H.Bronsdon of the British American Oils to Eric Harvie Esq. Calgary, in reference to contract re: pipeline rates and facilities shown in full at page 2004 of the record.	2004
EXHIBIT 78 -	Map showing storage tanks at Turner Valley end of pipeline, produced by witness Coultis.	2005

(Exhibits, Volume 5
follows.)

J. J. FRAWLEY

2ALZ1
A05
.5

The Province of Alberta

A LEGISLATURE LIBRARY
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IN THE MATTER OF THE PUBLIC
INQUIRIES ACT

—and—

IN THE MATTER OF a Commission, dated the
12th day of October, A.D. 1938, to inquire
into matters connected with Petroleum
and Petroleum Products

Commissioners:

The Honourable MR. JUSTICE McGILLIVRAY
(*Chairman*)

—and—

L. R. LIPSETT, ESQ.

Session:

CALGARY, Alberta EXHIBITS

VOLUME 5

Mr. Morrison's Report - start page 112

BOX-84

ROYAL COMMISSION ON THE PETROLEUM INDUSTRY

CALGARY REFINERY

PREPARED FOR MR. FRED G. COTTLE - COMMISSION ACCOUNTANT.

DECEMBER 29TH, 1938.

ITEMS I AND 2. EXPRESSED IN BARRELS

TE	T. V. CRUDE OIL (NET STOCK)					T. V. SEPARATOR NAPHTHA (NET)				T. V. ABSORPTION NAPHTHA (NET)			
	TOTAL STOCK ON HAND	HELD IN STORAGE FOR IMPERIAL OIL, LTD.	HELD IN STORAGE FOR BRITISH AMER. OIL CO.	HELD IN STORAGE FOR LION OILS LTD.	MAXIMUM VOLUME ON HAND DURING MONTH.	TOTAL STOCK ON HAND	HELD IN STORAGE FOR IMPERIAL OIL, LTD.	HELD IN STORAGE FOR BRITISH AMER. OIL CO.	MAXIMUM VOLUME ON HAND DURING MONTH	TOTAL STOCK ON HAND	HELD IN STORAGE FOR IMPERIAL OIL, LTD.	HELD IN STORAGE FOR BRITISH AMER. OIL CO.	MAXIMUM VOLUME ON HAND DURING MONTH.
NUARY 1/37	14,738	14,738	-	-	36,955	2,349	2,349	-	3,696	125	125	-	991
EBRUARY 1/37	24,220	24,220	-	-	42,310	3,153	3,153	-	3,415	36	36	-	624
RCH 1/37	11,281	11,281	-	-	22,716	3,190	3,190	-	3,212	963	963	-	1,036
PRIL 1/37	23,128	23,128	-	-	42,944	3,405	3,405	-	3,600	473	473	-	1,114
Y 1/37	42,919	42,919	-	-	43,984	1,724	1,724	-	2,018	1,852	1,852	-	2,964
NE 1/37	16,703	16,703	-	-	54,452	1,461	1,314	147	2,092	1,594	1,256	338	2,627
LY 1/37	51,557	49,424	2,133	-	79,539	1,476	1,476	-	1,765	706	706	-	2,861
GUST 1/37	78,875	75,108	3,767	-	145,560	896	896	-	1,762	784	784	-	23,208
PTEMBER 1/37	149,732	145,388	4,344	-	175,249	1,196	1,196	-	2,006	9,271	9,271	-	22,353
TCBER 1/37	149,149	144,805	4,344	-	149,149	2,152	2,152	-	2,152	22,480	18,371	4,109	22,480
VEMBER 1/37	107,764	103,194	4,570	-	107,764	654	654	-	2,099	4,114	2,903	1,211	8,386
CEMBER 1/37	58,485	53,805	4,680	-	58,485	1,808	1,808	-	5,150	5,891	5,891	-	13,325
NCARY 1/38	26,421	21,500	4,921	-	47,900	5,068	5,068	-	9,121	12,266	12,266	-	24,270
BFUARY 1/38	36,999	36,999	-	-	54,835	7,130	7,130	-	7,130	27,769	27,769	-	27,769
RCH 1/37	67,574	67,574	-	-	89,980	7,105	7,105	-	7,105	23,310	23,310	-	23,310
RIL 1/38	97,131	97,131	-	-	112,228	8,496	8,496	-	8,496	17,957	17,957	-	27,312
1/38	117,805	115,565	-	2,240	132,141	6,981	6,981	-	6,981	18,671	18,671	-	32,273
NE 1/38	118,478	118,510	-	32	123,231	7,047	7,047	-	7,047	23,878	23,878	-	29,350
Y 1/38	75,847	75,847	-	-	98,350	7,036	7,036	-	7,036	21,826	21,826	-	30,985
UST 1/38	99,535	47,313	52,222	-	109,173	7,036	7,036	-	7,036	28,883	28,883	-	28,883
TEMBER 1/33	102,969	63,176	39,793	-	134,432	7,036	7,036	-	7,036	19,639	18,892	747	22,137
OBER 1/38	142,813	142,813	-	-	161,188	-	-	-	-	12,911	12,911	-	17,253
EMBER 1/38	151,258	151,258	-	-	151,258	-	-	-	-	10,974	10,974	-	15,371
EMBER 1/38	122,464	119,674	-	2,790	155,436	-	-	-	-	5,347	5,347	-	10,480

EXHIBIT 80

Record Page

Item No. 3.

2009

Tank No.	Date of Construction	Original Cost	Capacity in Barrels.
3	June, 1926	$51,163.15	80,088
4	June, 1926	51,153.16	80,070
8	September, 1924	41,402.88	42,000

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EXHIBIT 81

2020

JANUARY 12, 1939.

DEGRADATION OF T.V. CRUDE NPAHTHA AT CALGARY REFINERY DUE TO LINE WASHING (EXPRESSED IN BARRELS) SUPPLIED Mr. Cottle.

DATE 1938	T.V. CRUDE NAP. PUMPED	T.V. CRUDE NAP. RECEIVED	DEGRADED TO T.V. CRUDE OIL
January:	3811	2575	1221
February:	4564	3670	898
March:	4367	3283	1065
April:	2753	-	2744
May:	662	-	660
June:	-	-	-
July:	-	-	-
August:	-	-	-
September:	-	-	-

EXHIBIT 82

Record Page. 2021.

Degradation of T.V.Absorption Naphtha at Calgary Refinery Due to Line Washing (Expressed in Barrels)

Supplied Mr. Cottle

Date 1938	T.V.Abs. Nap. Pumped	On hand in Line 1st of Month	T.V.Abs. Nap. Received	On Hand in Line Last of Month	Degraded to T.V.Crude Nap.	Degraded to T.V. Crude Oil
January	44,419	2,498	42,780	-	3,980	-
February	42,901	-	38,901	-	4,027	-
March	43,207	-	37,307	-	5,759	-
April	31,520	-	25,463	-	3,152	2,836
May	35,887	-	32,357	2,497	900	55
June	34,866	2,497	34,632	2,497	-	160
July	36,574	2,497	38,062	-	-	957
August	32,079	-	27,736	-	-	4,312
September	27,093	-	24,370	-	-	2,650

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EXHIBIT 83.   2028.

Extracts from statements prepared by the Royalite Oil Company at the end of each fiscal year, which are called "Jersey Statements", prepared in great detail in both Canadian and American dollars for the purpose of consolidating the Royalite Account with its parent company's account. The extracts included in this Exhibit are "Classified Trial Balances" for the fiscal year ending December 31st, 1933, and statements prepared for the purpose of estimating the costs of crude oil and other products.

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Record Page.

EXHIBIT "84". 2029.

Similar statements as contained in Exhibit "83" for the fiscal year ending December 31st, 1934.

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EXHIBIT "85" 2029.

Similar statements as contained in Exhibit "83" for the fiscal year ending December 31st, 1935.

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EXHIBIT "86". 2029.

Similar statements as contained in Exhibit "83" for the fiscal year ending December 31st, 1936.

....

EXHIBIT "87". 2029.

Similar statements as contained in Exhibit "83" for the fiscal year ending December 31st, 1937.

....

EXHIBIT "88".

Calgary, 9th January, 1939.

F. G. Cottle, Esq., C.A.,
Accountant to the Royal Commission
on the Petroleum Industry,
CALGARY, Alberta.

Dear Sir:

In accordance with your instructions, we have examined certain of the books and records of the Royalite Oil Company Limited for the purpose of obtaining information relative to the cost of gathering, handling and transporting oil in Alberta by pipe line. The specific matters under consideration are contained in the "Programme of Inquiry", as follows:-

"B. GATHERING, HANDLING AND TRANSPORTING IN ALBERTA BY PIPE LINE.

"Cost (1) (d)

"Determination of the cost and to that and
"inquiry into the factors which are now and/or
"which ought to be taken into account in deter-
"mining cost including consideration of:-

"Capital investment in Alberta; (1) (d)
"Operating Cost; (1) (d)
"Any other relevant cost; (1) (d)

"Whether either with regard to capital
"investment or operating cost or any other cost,
"any expenditure is incurred or charge is
"made which is either wholly or partially
"unnecessary or is not essential or is
"not in the public interest. (m).

"Determination of what the fair and equitable
"cost should be. (d).

"Rates (Price) (1) (di)

"The rates charged for the gathering, handling and
"transporting from Turner Valley to Calgary;

"Whether any charges made in respect of gathering,
"handling or distributing are excessive or unreas-
"onable;

"Whether any expenditure incurred in or incidentally

Exhibit "88".

"to the handling, gathering or distribution is
"either wholly or partially unnecessary or
"which is not essential or is not in the public
"interest;

"Profit or losses; (1)

"What the fair and equitable rate should be.(di)"

We submit herewith the following statements which have been prepared from the material contained in the records of the Company, together with such other information which had to be obtained from other sources.

1. Comparative Statement of Cost of Handling, Gathering, and Transporting Oil, in cents per Barrel, at varying Rates of Return on Invested Capital, for the Nine Months Period ended 30th September, 1938.
2. Summarized Statements of Revenue and Expenditures for the Years 1934 to 1937 and for the Nine Months ended 30th September, 1938, on the bases of Depreciation of from Five to Thirty Years and on the Basis of Depreciation as shown by the books.
3. Summarized statements for the above mentioned periods, showing the Return on Capital Invested.
4. Individual Detailed Statements of Revenue and Expenditures (Direct and Indirect Costs only) for the periods under review.
5. Statement showing Details of Administration Costs.
6. Statement showing Details of Invested Capital as at 30th September, 1938.
7. Statement showing Details of Sundry Assets as at 30th September, 1938.
8. List of Charges (showing dates) for Pipe Line Transportation.
9. Statement of Oil Movement by Pipe Lines, showing Deductions and Line Losses for the years 1933 to 1937 and the Nine Months ended 30th September, 1938.

Allocation of Expenses.

The accounting records of the Pipe Line Division

EXHIBIT "88".

of this Company are included with the other accounting records and the charges in respect of operation have not been made in such a way that the results of this division can be readily ascertained. The revenue earned is shown in separate accounts as are also the direct expenditures. It will be realized, however, that there are a number of indirect costs which are due to be borne by this division, and it is in these amounts that considerable difficulty has been experienced in arriving at a proper basis of distribution.

We have discussed the various angles of the problem of the disposition of indirect costs with the officials and with the auditors of the Company. The Company has already put through its books, an allocation of some of these indirect costs, but it is agreed that the distribution which has been made might be unfair to the Company insofar as the Pipe Line Division is only a department, and that it is not necessary for the Company to have a detailed accounting for every department. After much discussion, it was agreed that the indirect costs would be distributed on what is known as a labor ratio basis, which, in this case, means the proportionate relationship of the amount of the wages earned by the men employed in the Pipe Line Division compared with the related amount of the wages earned by all of the men employed by the Company. We accepted this basis on the understanding that all men employed, both as to capital expenditures, such as drilling of wells, etc., and also as to operating expenditures, were included. The principle of including the men employed on capital expenditures

Exhibit "88".

did not meet with the approval of the representatives of the Company, and we understand that they have used a different basis of apportionment of indirect costs. In the attached statements, we have used the labor ratio as the basis of distributing these costs.

Depreciation - Fixed Assets.

An important item in the determining of costs is the depreciation of the fixed assets or the Invested Capital. In ascertaining the amount of depreciation, two factors must be known, namely the amount invested in the assets and the estimated life of the assets.

We are of the opinion that, insofar as the Capital Investment is concerned, the amount should be based on the original cost to the Company less the amount of accrued depreciation which has occurred.

The amount of the original cost, in our opinion, should relate only to the assets of the Pipe Line Division presently in use and which are necessary to the proper and efficient operation of the system. These assets are usually referred to as being used and useful.

The assets of the Pipe Line Division are enumerated on an attached schedule and consist of:- Gathering Lines, which connect the tanks of the various producing wells with the Tank Farm, and also the Absorption Plant with the Tank Farm; Trunk Delivery Lines, which connect the Tank Farm with the Refinery of the Imperial Oil Limited at Calgary; Tank Storage at Turner Valley, which is referred to as the Tank Farm, at which point the oil is gathered

Exhibit "88".

and batched for transportation through the Trunk Lines; Pumps, Pumphouse and Tanks; Automotive Equipment and sundry other equipment, all necessary for the efficient operation of the Pipe Line.

In addition to the foregoing assets which are referred to as the Pipe Line Assets, there are other assets, such as Fuel Gas Lines, Water Lines, Boiler Plant, Electric Plant, Residential Quarters and other like assets, the details of which are also shown in an accompanying statement, which are all used, to some extent, in the operation of the Pipe Line system. The extent of the amount of these sundry assets which is applicable to the Pipe Line has been determined in the same manner as the amount of the indirect operating costs, viz. the labor ratio basis. A similar proportion of the Investment in Sundry Materials on Hand has also been included, which amount is deemed to include any necessary cash Working Capital.

In ascertaining the annual charge for depreciation, we have used, as the capital figure, the total of the Invested Capital at the beginning of each year, together with half of the additions and/or deductions during the succeeding year. The resultant figure has also been used as the basis for the purpose of determining the rate of return on the Capital Investment. A salvage value of 10% has been deducted from the assets when arriving at the annual charge for depreciation on the bases of life-times of from five to fifteen years, and 5% salvage value on the bases of life-times of from twenty to thirty years.

Exhibit "88".

It is necessary to know the life of the various assets of the Pipe Line Division in order to calculate the annual depreciation and, in our opinion, in this particular problem, the estimated life of the Turner Valley Oil Field is the determining factor. Evidence is being submitted to the Commission on this very important factor, and it has been suggested that our statements should be prepared on the bases of life-times varying from five to thirty years. In addition, we have prepared a further statement using the depreciation that the Company has actually put through the books.

Because of the number of bases for depreciation used in the statements, it is not practical to summarize them in this Report and, therefore, the results shown must be considered by a review of the statements.

Operating Results.

The revenue of the Pipe Line Division is usually confined to one source, viz. the rates received for transporting oil. In the years 1937 and 1938, however, the books of the Company show a further revenue under the heading of "Pipe Line Adjustments". For the year 1937, the amount is $57,479.63, and for the nine months ended 30th September, 1938, the total is $83,694.31. These amounts represent the gain to the Company of the difference between the actual Line Losses sustained and the amount of the deductions made from the producing Companies to provide for such losses. This phase of the operations is dealt with later in this Report.

Exhibit "88".

The expenditures, as shown by the attached statements, are divided into the following headings:-

Direct Costs,
Indirect Costs,
Depreciation,
Income Taxes,
Losses on Sales or Retirements of Equipment.

The direct operating costs are those as shown by the books under "Pipe Line Operating Expenses, from which have been eliminated the allocations of indirect costs, as charged by the Company. Depreciation has also been eliminated from these accounts insofar as it has been charged in the books. The basis of charging indirect costs has already been explained as has also the basis of depreciation. Income Taxes have been calculated at the rates prevailing in the respective periods and the Losses on Sales of Equipment have been adjusted to Conform with the varying rates of depreciation.

In the Statement of Operations for the nine months ended 30th September, 1938, we have eliminated from the direct costs, as shown by the books, an item of rental paid to the Imperial Oil Limited on Storage Tanks, amounting to $14,583.30. This sum represents rental for five months (May to September, 1938) at the rate of $35,000.00 per year on approximately 200,000 barrels of Storage at the Refinery of the Imperial Oil Limited, Calgary. After consultation with Dr. B. B. Boatright, Petroleum and Natural Gas Engineer, of Houston, Texas, who has been retained by Counsel to the Commission, and who, we understand, will give evidence before the Commission in this regard,

Exhibit "88".

we are of the opinion that this rental is not a proper charge against the Pipe Line Division.

As mentioned previously, the financial records do not show separately all of the transactions of the Pipe Line Division, but we have been supplied with a copy of statements which are prepared annually for Head Office purposes and in which the operations of the Pipe Line Division are shown. These statements were obtained for the years 1933 to 1937 and, insofar as they relate to the Pipe Line Division, are summarized hereunder:-

Year	Assets	Depreciation Reserve (In Red)	Net Assets
1933	$712,225.53	$324,883.68	$387,341.85
1934	700,073.24	378,560.99	321,512.25
1935	658,629.10	317,818.04	340,811.06
1936	701,062.47	373,678.76	327,383.71
1937	673,161.62	165,084.50	508,077.03

Revenue (In red)	Expenses	Excess of Revenue over Expenses. (In red)
$178,062.21	108,746.62	69,315.59
228,007.66	108,786.47	119,221.19
207,007.45	99,005.21	108,002.24
198,863.42	97,929.44	100,933.98
486,324.15	190,221.26	296,102.89
$1,298,264.89	$604,689.00	$693,575.89

In the year 1937, there was additional revenue shown in the records of the Pipe Line Division amounting to $57,479.63, representing Pipe Line Adjustments, which amount is not included in the above figures.

Pipe Line Losses.

In the Programme of Inquiry, under the heading of "Rates", the following subject of inquiry appears:-

Exhibit "88".

> "Whether any charges made in respect of
> "gathering, handling or distributing are
> "excessive or unreasonable."

Attached hereto is a statement showing the experience of the Company in respect of Line Losses for the years 1933 to 1937 and for the nine months ended 30th September, 1938. Prior to 4th October, 1936, the Imperial Company reimbursed the Royalite for the oil purchases made, and the Imperial Company took over the oil delivered, irrespective of whether it was more or less than the amount for which it had paid. Since 5th October, 1936, the Royalite Company receives payment for the oil actually delivered by it, so that the Pipe Line Division is now responsible for the losses or gains in respect of the oil transported over its system.

Summarizing this statement, the results are as follows:-

Year	Barrels	IMPERIAL COMPANY. Loss (in red) or Gain.	ROYALITE COMPANY. Loss (in red) or Gain.	TOTAL. Loss (in red) or Gain.
		(in red)	(in red)	(in red)
1933	7,671	$22,446.04	$ -	$22,446.04
1934	7,931	19,841.62	-	19,841.62
1935	1,878	4,384.77	-	4,384.77
1936	963	998.89	1,289.92	2,288.81
		(in Black)	(in black)	(in black)
1937	36,305	9,969.40	58,769.55	68,738.95
1938	64,029	-	83,694.31	83,694.31
	81,891	$37,701.92	$141,173.94	$103,472.02

The 1938 results shown above are for the nine months ended 30th September. Since 1st September, 1938, the deductions made to provide for Line Losses

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Exhibit "88".

have been reduced from 3% on Naphtha and 2% on Crude deliveries to 2% on Naphtha and 1% on Crude deliveries. At the date of this Report, the results of the Pipe Line Adjustments for the months of October to December, 1938, were not available to us.

Yours faithfully,

"Harvey & Morrison".

KJM/GG. CHARTERED ACCOUNTANTS.

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EXHIBIT 88 CONTINUED.

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

PIPE LINE DIVISION.

COMPARATIVE STATEMENT OF COST OF HANDLING, GATHERING AND TRANSPORTING OIL, IN CENTS PER BARREL, AT VARYING RATES OF RETURN OF INVESTED CAPITAL, FOR THE NINE MONTHS PERIOD ENDED 30TH. SPETEMBER, 1938.

	DEPRECIATION FROM 1ST JANUARY, 1939 ON THE BASIS OF:						
	5 YEARS	10 YEARS	15 YEARS	20 YEARS	25 YEARS	30 YEARS	CHARGED BY COMPANY.
PIPE LINE RATE CHARGED	15.¢	15.¢	15.¢	15.¢	15.¢	15.¢	15.¢
TOTAL COST - NOT INCLUDING ANY RETURN ON INVESTMENT	8.417	7.739	7.460	7.341	7.238	7.165	7.929
TOTAL COST - TO INCLUDE RETURN ON INVESTMENT AT 6%	9.300	8.748	8.534	8.456	8.380	8.328	8.879
7%	9.447	8.916	8.713	8.641	8.571	8.522	9.037
7½%	9.520	9.000	8.802	8.734	8.666	8.619	9.116
8%	9.594	9.084	8.892	8.827	8.761	8.716	9.195
8½%	9.667	9.168	8.981	8.920	8.856	8.812	9.274
9%	9.741	9.252	9.071	9.013	8.952	8.909	9.354
9½%	9.814	9.337	9.160	9.106	9.047	9.006	9.433
10%	9.888	9.421	9.250	9.199	9.142	9.103	9.312

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.
PIPE LINE DIVISION.

SUMMARY OF REVENUE (AS SHOWN BY THE BOOKS OF THE COMPANY) AND EXPENDITURES (AS DETERMINED FROM THE RECORDS BY MESSRS. HARVEY AND MORRISON) FOR THE YEARS 1934 TO 1937 AND THE NINE MONTHS ENDED 30TH. SEPTEMBER, 1938.

	YEAR 1934			YEAR 1935			YEAR 1936			YEAR	
REVENUE.	BARRELS	AMOUNT	AMOUNT PER BBL. IN CENTS	BARRELS	AMOUNT	AMOUNT PER BBL. IN CENTS	BARRELS	AMOUNT	AMOUNT PER BBL. IN CENTS	BARRELS	A
OIL GATHERING AND TRUNK LINES											
EARNINGS	912,030	$228,007.66	25	834,586	$207,007.45	24.804	827,248	$198,863.42	24.04	2,431,517	$486,
PIPE LINE ADJUSTMENT											57,
	912,030	$228,007.66	25	834,586	$207,007.45	24.804	827.248	$198,863.42	24.04	2,431,517	$543
EXPENDITURE WITH DEPRECIATION ON A BASIS OF FIVE YEARS FROM 1ST. JANUARY, 1939											
DIRECT OPERATING COSTS		$39,765.26	4.360		$ 36,768.30	4.405		$ 47,486.92	5.740		$ 64
INDIRECT OPERATING COSTS		10,890.91	1.194		4,394.92	.527		13,206.76	1.596		32
		$50,656.17	5.554		$ 41,163.22	4.932		$ 60,693.68	7.336		$ 96
DEPRECIATION		27,696.75	3.037		24,514.12	2.937		30,643.16	3.704		69
TOTAL COST, BEFORE PROVISION FOR INCOME TAXES		$78,352.92	8.591		$ 65,677.54	7.869		$ 91,336.84	11.040		$166
INCOME TAXES		26.201.30	2.873		28,272.52	3.587		21,535.12	2.603		83
LOSSES ON SALES OR RETIREMENTS OF EQUIPMENT		2.449.06	.268		4.848.68	.581		45.07	-		
TOTAL COST, INCLUDING INCOME TAXES, ETC.		$107,003.28	11.732		$ 98,798.54	11.837		$112,826.89	13.643		$249
NET PROFIT FOR YEAR		121,004.38	13.268		108,208.91	12.967		86,036.53	10.397		294
		$228,007.66	25.		$207,007.45	24.804		$198.863.42	24.04		$543
TOTAL NET INVESTMENT		$318,020.19			$242,255.05			$277,868.20			$535
RATE OF RETURN ON INVESTMENT		38.05%			44.67%			30.96%			
EXPENDITURE WITH DEPRECIATION ON A BASIS OF TEN YEARS FROM 1ST. JANUARY, 1939											
DIRECT OPERATING COSTS		$ 39,765.26	4.360		$ 36,768.30	4.405		$ 47,486.92	5.740		$ 64,
INDIRECT OPERATING COSTS		10,890.91	1.194		4,394.92	.527		13,206.76	1.596		32,
		$ 50,656.17	5.554		$ 41,163.22	4.932		$ 60,693.68	7.336		$ 96,
DEPRECIATION		20,493.70	2.247		18,056.96	2.164		22,171.37	2.680		45,
TOTAL COST, BEFORE PROVISION FOR INCOME TAXES		$ 71,149.87	7.801		$ 59,220.18	7.096		$ 82,865.05	10.016		$141,
INCOME TAXES		27,461.83	3.011		29,563.95	3.542		23,229.48	2.809		88,
LOSSES ON SALES OR RETIREMENTS OF EQUIPMENT		2,871.94	.315		6,006.29	.719		730.23	.086		
TOTAL COST, INCLUDING INCOME TAXES, ETC.		$101,483.64	11.127		$ 94,790.42	11,357		$106,824.76	12.		$230,
NET PROFIT FOR YEAR		126,324.02	13,873		112,217.03	13,447		92,038.66	11,127		313,
		$228,007.66	25.		$207,007.45	24.804		$198,863.42	24.04		$543,
TOTAL NET INVESTMENT		$356.9[illegible]			$280,885.92			$328,415.00			$614,
RATE OF RETURN ON INVESTMENT		35.44%			39.95%			28.03%			

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.
PIPE LINE DIV

ENUE (AS SHOWN BY THE BOOKS OF THE COMPANY)
ED FROM THE RECORDS BY MESSRS. HARVEY AND MORRISON)
AND THE NINE MONTHS ENDED 30TH. SEPTEMBER, 1938.

1934		YEAR 1935			YEAR 1936			YEAR 1937.			NINE MONTHS TO 30TH. SEPT. 1938		
UNT	AMOUNT PER BBL. IN CENTS	BARRELS	AMOUNT	AMOUNT PER BBL. IN CENTS	BARRELS	AMOUNT	AMOUNT PER BBL. IN CENTS	BARRELS	AMOUNT	AMOUNT PER BBL. IN CENTS	BARRELS	AMOUNT	AMOUNT PER BBL. IN CENTS
07.66	25	834,586	$207,007.45	24.804	827,248	$198,863.42	24.04	2,431,517	$486,324.15 57,479.63	20	4,575,615	$687,313.45 83,694.31	15.021
07.66	25	834,586	$207,007.45	24.804	827.248	$198,863.42	24.04	2,431,517	$543,803.78	22.364	4,575,615	$771,007.76	16.850
65.26	4.360		$ 36,768.30	4.405		$ 47,486.92	5.740		$ 64,860.26	2.667		$128,401.42	2.806
90.91	1.194		4,394.92	.527		13,206.76	1.596		32,073.01	1,319		42,922.76	.938
56.17	5.554		$ 41,163.22	4.932		$ 60,693.68	7.336		$ 96,933.27	3.986		$171,324.18	3.744
96.75	3.037		24,514.12	2.937		30,643.16	3.704		69,546.50	2.860		104,221.00	2.278
52.92	8.591		$ 65,677.54	7.869		$ 91,336.84	11.040		$166.479.77	6.846		$275.545.18	6.022
01.30	2.873		28,272.52	3.587		21,535.12	2.603		83,016.05	3.414		108,997.50	2.382
49.06	.268		4.848.68	.581		45.07	-		30.57	-		621.92	.013
03.28	11.732		$ 98,798.54	11.837		$112,826.89	13.643		$249,526.39	10.260		$385,164.60	8.417
04.38	13.268		108,208.91	12.967		86,036.53	10.397		294,277.39	12.104		385,843.16	8.433
07.66	25.		$207,007.45	24.804		$198.863.42	24.04		$543,803.78	22.364		$771,007.76	16,850
20.19			$242,255.05			$277,868.20			$535,689.14			$897,448.07	
38.05%			44.67%			30.96%			54.93%			57.32%	
65.26	4.360		$ 36,768.30	4.405		$ 47,486.92	5.740		$ 64,860.26	2.667		$128,401.42	2.806
90.91	1 194		4,394.92	.527		13,206.76	1 596		32,073.01	1,319		42,922.76	.938
56.17	5.554		$ 41,163.22	4.932		$ 60,693.68	7.336		$ 96,933.27	3.986		$171,324.18	3.744
93.70	2.247		18,056.96	2.164		22,171.37	2.680		45,043.85	1.853		63,974.40	1.398
9.87	7.801		$ 59,220.18	7.096		$ 82,865.05	10.016		$141,977.12	5.839		$235,298.58	5.142
61.83	3.011		29,563.95	3.542		23,229.48	2.809		88,406.63	3.636		117,851.82	2.576
71.94	.315		6,006.29	.719		730.23	.086		92.52	.003		940.51	.021
33.64	11.127		$ 94,790.42	11,357		$106,824.76	12.		$230,476.27	9.478		$354,090.91	7.739
24.02	13,873		112,217.03	13,447		92,038.66	11,127		313,327.51	12.886		416,916.85	9.111
07.66	25.		$207,007.45	24.804		$198,863.42	24.04		$543,803.78	22.364		$771,007.76	16.850
[illegible]			$280,885.92			$328,415.00			$614,516.57			$1,025,957.63	
35.44%			39.95%			28.03%			50.99%			54.18%	

EXHIBIT 88 CONTINUED.

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.
PIPE LINE DIVISION.

SUMMARY OF REVENUE (AS SHOWN BY THE BOOKS OF THE COMPANY) AND EXPENDITURES (AS DETERMINED FROM THE RECORDS BY MESSRS. HARVEY AND MORRISON) FOR THE YEARS 1934 TO 1937 AND THE NINE MONTHS ENDED 30TH. SEPTEMBER, 1938 (CONT'D)

	YEAR 1934		YEAR 1935		YEAR 1936	
	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS
EXPENDITURE WITH DEPRECIATION ON A BASIS OF FIFTEEN YEARS FROM 1ST. JANUARY, 1939						
DIRECT OPERATING COSTS	$ 39,765.26	4.360	$ 36,768.30	4.405	$ 47,486.92	5.740
INDIRECT OPERATING COSTS	10,890.91	1.194	4,394.92	.527	13,206.76	1.596
	$ 50,656.17	5.554	$ 41,163.22	4.932	$ 60,693.68	7.336
DEPRECIATION	16,333.01	1.791	14,358.47	1.720	17,553.42	2.122
TOTAL COST, BEFORE PROVISION FOR INCOME TAXES	$ 66,989.18	7.345	$ 55,521.69	6.652	78,247.10	9.458
INCOME TAXES	28,189.95	3.091	30,303.65	3.631	24,153.07	2.920
LOSSES ON SALES OR RETIREMENTS OF EQUIPMENT	3,121.20	.342	6,683.75	.801	1,195.69	.144
TOTAL COST, INCLUDING INCOME TAXES, ETC.	$ 98,300.33	10.778	$ 92,509.09	11.084	$103,595.86	12.522
NET PROFIT FOR YEAR	129,707.33	14.222	114,498.36	13.720	95,267.56	11.518
	$228,007.66	25.	$207,007.45	24.804	$198,863.42	24.04
TOTAL NET INVESTMENT	$380,545.09		$305,158.44		$359,386.25	
RATE OF RETURN ON INVESTMENT	34.08%		37.52%		26.51%	
EXPENDITURE WITH DEPRECIATION ON A BASIS OF TWENTY YEARS FROM 1ST. JANUARY, 1939						
DIRECT OPERATING COSTS	$ 39,765.26	4.360	$ 36,768.30	4.405	$ 47,486.92	5.740
INDIRECT OPERATING COSTS	10,890.91	1.194	4,394.92	.527	13,206.76	1.596
	$ 50,656.17	5.554	$ 41,163.22	4.932	$ 60,693.68	7.336
DEPRECIATION	14,251.25	1.563	12,595.36	1.509	15,372.41	1.858
TOTAL COST, BEFORE PROVISION FOR INCOME TAXES	$ 64,907.42	7.117	$ 53,758.58	6.441	$ 76,066.09	9.194
INCOME TAXES	28,554.26	3.131	30,656.27	3.673	24,589.27	2.973
LOSSES ON SALES OR RETIREMENTS OF EQUIPMENT	3,285.73	.360	7,129.17	.854	1,506.12	.183
TOTAL COST, INCLUDING INCOME TAXES, ETC.	$ 96,747.41	10.608	$ 91,544.02	10.968	$102,161.48	12.350
NET PROFIT FOR YEAR	131,260.25	14.392	115,463.43	13.836	96,701.94	11.690
	$228,007.66	25.	$207,007.45	24.804	$198,863.42	24.04
TOTAL NET INVESTMENT	$396,493.45		$321,552.15		$380,022.19	
RATE OF RETURN ON INVESTMENT	33.10%		35.91%		25.45%	

TE OIL COMPANY LIMITED.
CALGARY, ALBERTA.
IPE LINE DIVISION.

S SHOWN BY THE BOOKS OF THE COMPANY)
THE RECORDS BY MESSRS. HARVEY AND MORRISON)
NE MONTHS ENDED 30TH. SEPTEMBER, 1938 (CONT'D)

R 1934	YEAR 1935		YEAR 1936		YEAR 1937.		NINE MONTHS TO 30TH. SEPT., 1938.	
AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS.	AMOUNT	AMOUNT PER BBL. IN CENTS.
4.360	$ 36,768.30	4.405	$ 47,486.92	5.740	$ 64,860.26	2.667	$128,401.42	2.806
1.194	4,394.92	.527	13,206.76	1.596	32,073.01	1.319	42,922.76	.938
5.554	$ 41,163.22	4.932	$ 60,693.68	7.336	$ 96,933.27	3.986	$171,324.18	3.744
1.791	14,358.47	1.720	17,553.42	2.122	33,995.10	1.398	47,494.41	1.038
7.345	$ 55,521.69	6.652	78,247.10	9.458	$130,928.37	5.384	$218,818.59	4.782
3.091	30,303.65	3.631	24,153.07	2.920	90,837.36	3.736	121,477.41	2.655
.342	6,683.75	.801	1,195.69	.144	119.77	.005	1,084.69	.023
10.778	$ 92,509.09	11.084	$103,595.86	12.522	$221,885.50	9.125	$341,380.69	7.460
14.222	114,498.36	13.720	95,267.56	11.518	321,918.28	13.239	429.627.07	9.390
25.	$207,007.45	24.804	$198,863.42	24.04	$543,803.78	22.364	$771,007.76	16.850
	$305,158.44		$359,386.25		$659,116.00		$1,091,998.17	
	37.52%		26.51%		48.84%		52.46%	
4.360	$ 36,768.30	4.405	$ 47,486.92	5.740	$ 64,860.26	2.667	$128,401.42	2.806
1.194	4,394.92	.527	13,206.76	1.596	32,073.01	1.319	42,922.76	.938
5.554	$ 41,163.22	4.932	$ 60,693.68	7.336	$ 96,933.27	3.986	$171,324.18	3.744
1.563	12,595.36	1.509	15,372.41	1.858	28,990.90	1.192	40,397.85	.883
7.117	$ 53,758.58	6.441	$ 76,066.09	9.194	$125,924.17	5.178	$211,722.03	4.627
3.131	30,656.27	3.673	24,589.27	2.973	91,938.28	3.781	123,038.66	2.689
.360	7,129.17	.854	1,506.12	.183	135.15	.006	1,167.81	.025
10.608	$ 91,544.02	10.968	$102,161.48	12.350	$217,997.60	8.965	$335,928.50	7.341
14.392	115,463.43	13.836	96,701.94	11.690	325,806.18	13.399	435,079.26	9.509
25.	$207,007.45	24.804	$198,863.42	24.04	$543,803.78	22.364	$771,007.76	16.850
	$321,552.15		$380,022.19		$688,122.63		$1,133,300.64	
	35.91%		25.45%		47.35%		51.19%	

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ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.
PIPE LINE DIVISION.

SUMMARY OF REVENUE (AS SHOWN BY THE BOOKS OF THE COMPANY) AND EXPENDITURES (AS DETERMINED FROM THE RECORDS BY MESSRS. HARVEY AND MORRISON) FOR THE YEARS 1934 TO 1937 AND THE NINE MONTHS ENDED 30th. SEPTEMBER, 1938 (Cont'd.)

	YEAR 1934.		YEAR 1935		YEAR 1936		
	Amount	Amount per Bbl. in cents	Amount	Amount per Bbl. in cents	Amount	Amount per Bbl. in cents	Amount
Expenditure with depreciation on a basis of twenty-five years from 1st. January, 1939							
Direct Operating Costs	$ 39,765.26	4.360	$ 36,768.30	4.405	$ 47,486.92	5.740	$ 64,860.2
Indirect Operating Costs	10,890.91	1.194	4,394.92	.527	13,206.76	1.596	32,073.0
	$ 50,656.17	5.554	$ 41,163.22	4.932	$ 60,693.68	7.336	$ 96,933.2
Depreciation	12,312.74	1.350	10,798.71	1.294	13,206.34	1.596	24,511.6
Total Cost, before Provision for Income Taxes	$ 62,968.91	6.904	$ 51,961.93	6.226	$ 73,900.02	8.932	$121,444.9
Income Taxes	28,893.50	3.168	31,015.60	3.716	25,022.48	3.025	92,923.7
Losses on Sales or Retirements of Equipment	3,402.58	.373	7,444.60	.892	1,728.11	.209	144.9
Total Cost, including Income Taxes, etc.	$ 95,264.99	10.445	$ 90,422.13	10.834	$100,650.61	12.166	$214,513.6
Net Profit for Year	132,742.67	14.555	116,585.32	13.970	98,212.81	11.874	329,290.1
	$228,007.66	25.	$207,007.45	24.804	$198,863.42	24.04	$543,803.7
Total Net Investment	$407,794.43		$333,082.57		$394,707.95		$708,344.7
Rate of Return on Investment	32.55%		35%		24.88%		46.4
Expenditure with depreciation on a basis of thirty years from 1st. January, 1939.							
Direct Operating Costs	$ 39,765.26	4.360	$ 36,768.30	4.405	$ 47,486.92	5.740	$ 64,860.26
Indirect Operating Costs	10,890.91	1.194	4,394.92	.527	13,206.76	1.596	32,073.01
	$ 50,656.17	5.554	$ 41,163.22	4.932	$ 60,693.68	7.336	$ 96,933.27
Depreciation	10,797.11	1.184	9,461,56	1.134	11,607.11	1.403	21,321.44
Total Cost, before Provision for Income Taxes	$ 61,453.28	6.738	$ 50,624.78	6.066	$ 72,300.79	8.739	$118,254.71
Income Taxes	29,158.73	3.197	31,283.03	3.748	25,342.33	3.063	93,625.56
Losses on Sales or Retirements of Equipment	3,489.71	.383	7,679.66	.920	1,894.59	.229	151.89
Total Cost, including Income Taxes, etc.	$ 94,101,72	10.318	$89,587.47	10.734	$ 99,537.71	12.031	$212,032.16
Net Profit for Year	133,905.94	14,682	117,419.98	14.070	99,325.71	12.009	331,771.62
	$228,007.66	25	$207,007.45	24.804	$198,863.42	24.04	$543,803.78
Total Net Investment	$416,394.74		$341,898.66		$405,794.87		$723,523.53
Rate of Return on Investment	32.16%		34.34%		24.48%		45.85

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.
PIPE LINE DIVISION.

REVENUE (AS SHOWN BY THE BOOKS OF THE COMPANY)
RMINED FROM THE RECORDS BY MESSRS. HARVEY AND MORRISON)
ND THE NINE MONTHS ENDED 30TH. SEPTEMBER, 1938 (CONT'D.)

YEAR 1934.		YEAR 1935		YEAR 1936		YEAR 1937		NINE MONTHS TO 30TH. SEPT., 1938	
MOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS
,765.26	4.360	$ 36,768.30	4.405	$ 47,486.92	5.740	$ 64,860.26	2.667	$128,401.42	2.806
,890.91	1.194	4,394.92	.527	13,206.76	1.596	32,073.01	1,319	42,922.76	.938
,656.17	5.554	$ 41,163.22	4.932	$ 60,693.68	7.336	$ 96,933.27	3.986	$171,324.18	3.744
,312.74	1.350	10,798.71	1.294	13,206.34	1.596	24,511.65	1.008	34,226.00	.748
,968.91	6.904	$ 51,961.93	6.226	$ 73,900.02	8.932	$121,444.92	4.994	$205,550.18	4.492
,893.50	3.168	31,015.60	3.716	25,022.48	3.025	92,923.72	3.822	124,396.46	2.719
,402.58	.373	7,444.60	.892	1,728.11	.209	144.99	.006	1,222.10	.027
,264.99	10.445	$ 90,422.13	10.834	$100,650.61	12.166	$214,513.63	8.822	$331,168.74	7.238
,742.67	14.555	116,585.32	13.970	98,212.81	11.874	329,290.15	13,542	439,839.02	9.612
,007.66	25.	$207,007.45	24.804	$198,863.42	24.04	$543,803.78	22.364	$771,007.76	16.850
,794.43		$333,082.57		$394,707.95		$708,344.73		$1,161,570.74	
32.55%		35%		24.88%		46.49%		50.49%	

765.26	4.360	$ 36,768.30	4.405	$ 47,486.92	5.740	$ 64,860.26	2.667	$128,401.42	2.806
890.91	1.194	4,394.92	.527	13,206.76	1.596	32,073.01	1.319	42,922.76	.938
656.17	5.554	$ 41,163.22	4.932	$ 60,693.68	7.336	$ 96,933.27	3.986	$171,324.18	3.744
797.11	1.184	9,461,56	1.134	11,607.11	1.403	21,321.44	.877	29,927.91	.654
453.28	6.738	$ 50,624.78	6.066	$ 72,300.79	8.739	$118,254.71	4.863	$201.252.09	4.398
158.73	3.197	31,283.03	3.748	25,342.33	3.063	93,625.56	3.850	125.342.04	2.739
489.71	.383	7,679.66	.920	1,894.59	.229	151.89	.006	1,270.56	.028
101,72	10.318	$89,587.47	10.734	$ 99,537.71	12.031	$212,032.16	8.719	$327,864.69	7.165
905.94	14,682	117,419.98	14.070	99,325.71	12.009	331,771.62	13.645	443,143.07	9.685
007.66	25	$207,007.45	24.804	$198,863.42	24.04	$543,803.78	22.364	$771,007.76	16.850
394.74		$341,898.66		$405,794.87		$723,523.53		$1,182,447.03	
32.16%		34.34%		24.48%		45.85%		49.97%	

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ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.
PIPE LINE DIVISION.

SUMMARY OF REVENUE (AS SHOWN BY THE BOOKS OF THE COMPANY) AND EXPENDITURES (AS DETERMINED FROM THE RECORDS BY MESSRS. HARVEY AND MORRISON) FOR THE YEARS 1934 TO 1937 AND THE NINE MONTHS ENDED 30th. SEPTEMBER, 1938 (Cont'd.)

	Year 1934		Year 1935		Year 1936	
	Amount.	Amount per Bbl. in Cents	Amount	Amount per Bbl. in Cents	Amount	Amount per Bbl. in Cents
Expenditure with Depreciation as Shown by the Books of the Company						
Direct Operating Costs	$ 39,765.26	4.360	$ 36,768.30	4.405	$ 47,486.92	5.740
Indirect Operating Costs	10,890.91	1.194	4,394.92	.527	13,206.76	1.596
	$ 50,656.17	5.554	$ 41,163.22	4.932	$ 60,693.68	7.336
Depreciation	46,008.45	5.045	39,079.16	4.682	30,863.21	3.731
Total Cost, before Provision for Income Taxes	$ 96,664.62	10.599	$ 80,242.38	9.014	$ 91,556.89	11.067
Income Taxes	22,996.75	2.521	25,359.52	3.039	21,491.11	2.599
Losses on Sales or Retirements of Equipment	1,863.30	.204	2,951.64	.354	709.89	.086
Total Cost, Including Income Taxes, etc.	$121,524.67	13.324	$108.553.54	13.007	$112,338.11	13.580
Net Profit for Year	106,482.99	11,676	98,453.91	11.797	86,525.31	10.460
	$228,007.66	25	$207,007.45	24.804	$198,863.42	24.04
Total Net Investment	$203,581.05		$130,585.44		$195,182.20	
Rate of Return on Investment	52.30%		75.39%		44.33%	

YEAR 1937		NINE MONTHS TO 30TH. SEPT., 1938	
AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS.
$ 64,860.26	2.667	$128,401.42	2.806
32,073.01	1,319	42,922.76	.938
$ 96,933.27	3.986	$171,324.18	3.744
42,453.62	1.746	75,221.62	1.644
$139,386.89	5.732	$246,545.80	5.388
88,976.48	3.659	115,377.43	2.522
311.74	.013	889.93	.019
$228,675.11	9.404	$362,813.16	7.929
315,128.67	12.960	408,194.60	8.921
$543,803.78	22.364	$771,007.76	16.850
$655,054.94		$965,637.97	
48.11%		56.36%	

EXHIBIT 88 CONTINUED.

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.
PIPE LINE DIVISION.

SUMMARY SHOWING THE RETURN ON INVESTED CAPITAL FOR THE YEARS 1934 TO 1937 AND THE NINE MONTHS ENDED 30TH. SEPTEMBER, 1938.

	1934		1935		1936		1937		NINE MONTHS TO 30TH. SEPT., 1938	
	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS
ON A BASIS OF DEPRECIATION FIVE YEARS FROM 1ST. JANUARY, 1939										
TOTAL COST	$107,003.28	11.732	$ 98,798.54	11.837	$112,826.89	13.643	$249,526.39	10.260	$ 385,164.60	8.417
NET PROFIT FOR YEAR	121,004.38	13.268	108,208.91	12.967	86,036.53	10.397	294,277.39	12.104	385,843.16	8.433
TOTAL NET INVESTMENT	318,020.19		242,255.05		277,868.20		535.689.14		897,448.07	
RETURN ON INVESTMENT (ACTUAL)	38.05%		44.67%		30.96%		54.93%		57.32%	
RETURN ON INVESTMENT AT 6% PER ANNUM	$ 19,081.21	2.092	$ 14,535.30	1.742	$ 16,672.09	2.015	$ 32,141.35	1,322	$ 40,385.16	.883
7%	22,261.41	2.441	16,957.85	2.032	19,450.77	2.351	37,498.24	1.542	47,116.02	1.030
7½%	23,851.51	2.615	18,169.13	2.177	20,840.11	2.519	40,176.68	1.652	50,481.45	1.103
8%	25,441.62	2.790	19,380.40	2.322	22,229.46	2.687	42,855.13	1.762	53.846.89	1.177
8½%	27,031.72	2.964	20,591.68	2.467	23,618.80	2.855	45,533.58	1.873	57,212.32	1.250
9%	28,621.82	3.138	21,802.95	2.612	25,008.14	3.023	48,212.02	1.983	60,577.75	1.324
9½%	30,211.92	3.313	23,014.23	2.757	26,397.48	3.191	50,890.47	2.093	63.943.18	1.397
10%	31,802.02	3.487	24,225.50	2.903	27,786.82	3.359	53,568.91	2.203	67,308.60	1.471
ON A BASIS OF DEPRECIATION TEN YEARS FROM 1ST. JANUARY, 1939										
TOTAL COST	$101,483.64	11.127	$ 94,790.42	11.357	$106.824.76	12.913	$230,476.27	9.478	$354,090.91	7.739
NET PROFIT FOR YEAR	126,524.02	13.873	112,217.03	13.447	92,038.66	11.127	313,327.51	12.886	416,916.85	9.111
TOTAL NET INVESTMENT	356,972.91		280,885.92		328,415.00		614,516.57		1,025,957.63	
RETURN ON INVESTMENT (ACTUAL)	35.44%		39.95%		28.03%		50.99%		54.18%	
RETURN ON INVESTMENT AT 6% PER ANNUM	$ 21,418.37	2.348	$ 16,853.15	2.019	$ 19,704.90	2.382	$ 36,870.99	1.516	$ 46,168.10	1.009
7%	24,988.10	2.740	19,662.01	2.356	22.989.05	2.779	43,016.16	1,769	53,862.77	1.177
7½%	26,772.97	2.935	21,066.44	2.524	24,631.12	2.977	46,088.74	1.895	57,710.11	1.261
8%	28,557.83	3.131	22.470.87	2.692	26,273.20	3.176	49,161.32	2.022	61,557.46	1.345
8½%	30,342.70	3.327	23,875.30	2.861	27,915.27	3.374	52,233.91	2.148	65,404.80	1.429
9%	32,127.56	3.523	25,279.73	3.029	29,557.35	3.573	55,306.49	2.275	69,252.14	1.513
9½%	33,912.43	3.718	26,684.16	3.197	31,199.43	3.771	58,379.08	2.401	73,099.48	1.598
10%	35,697.29	3.914	28,088.59	3.366	32,841.50	3.970	61,451.66	2.527	76,946.82	1.682

EXHIBIT 88 CONTINUED.

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.
PIPE LINE DIVISION.

SUMMARY SHOWING THE RETURN ON INVESTED CAPITAL FOR THE YEARS 1934 TO 1937 AND THE NINE MONTHS ENDED 30TH. SEPTEMBER, 1938 (CONT'D.)

	1934		1935		1936		1937		NINE MONTHS TO 30TH. SEPT. 1938.	
	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS
ON A BASIS OF DEPRECIATION FIFTEEN YEARS FROM 1ST. JANUARY, 1939										
TOTAL COST	$ 98,300.33	10.778	$ 92,509.09	11.084	$103,595.86	12.522	$221,885.80	9.125	$341,380.69	7.460
NET PROFIT FOR YEAR	129,707.33	14,222	114,498.36	13.720	95,267.56	11.518	321,918.28	13.239	429,627.07	9.390
TOTAL NET INVESTMENT	380,545.09		305,158.44		359,386.25		659,116.00		1,091,998.17	
RETURN ON INVESTMENT (ACTUAL)	34.08%		37.52%		26.51%		48.84%		52.46%	
RETURN ON INVESTMENT AT 6% PER ANNUM	$ 22,832.70	2.503	$ 18,309.50	2.194	$ 21,563.17	2.607	$ 39,546.96	1.626	$ 49,139.92	1.074
7%	26,638.15	2.921	21,361.09	2.559	25,157.04	3.041	46,138.12	1,898	57,329.90	1.253
7½%	28,540.88	3.129	22,886.88	2.742	26,953.97	3.258	49,433.70	2.033	61,424.90	1.342
8%	30,443.60	3.338	24,412.67	2.925	28,750.90	3.475	52,729.28	2.169	65,519.90	1.432
8½%	32,346.33	3.547	25,938.47	3.108	30,547.83	3.693	56,024.86	2.304	69,614.89	1.521
9%	34,249.06	3.755	27,464.26	3.291	32,433.76	3.910	59,320.44	2.440	73,709.88	1.611
9½%	36,151.78	3.964	28,990.05	3.474	34,141.69	4.127	62,616.02	2.575	77,804.87	1.700
10%	38,054.51	4.173	30,515.84	3.657	35,938.63	4.345	65,911.60	2.711	81,899.87	1.790
ON A BASIS OF DEPRECIATION TWENTY YEARS FROM 1ST. JANUARY, 1939										
TOTAL COST	$ 96,747.41	10,608	$ 91,544.02	10.968	$102,161.48	12.350	$217,997.60	8.965	$ 335,928.50	7.341
NET PROFIT FOR YEAR	131,260.25	14,392	115,463.43	13.836	96,701.94	11.690	325,806.18	13.399	435,079.26	9.509
TOTAL NET INVESTMENT	396,493.45		321,552.15		380,022.19		688,122.63		1,133,300.64	
RETURN ON INVESTMENT (ACTUAL)	33.10%		35.91%		25,45%		47.35%		51.19%	
RETURN ON INVESTMENT AT 6% PER ANNUM	$ 23,789.60	2.608	$ 19,293.13	2.312	22,801.33	2.756	$ 41,287.36	1.698	$ 50,998.53	1.115
7%	27,754.54	3.043	22,508.65	2.697	26,601.53	3.216	48,168.58	1.981	59,498.28	1.300
7½%	29,737.01	3.261	24,116.41	2.890	28,501.66	3.445	51,609.20	2.123	63,748.16	1.393
8%	31,719.48	3.478	25,724.17	3.082	30,401.78	3.675	55,049.81	2.264	67,998.04	1,486
8½%	33,701.94	3.695	27,331.93	3.275	32,301.89	3.905	58,490.42	2.406	72,247.91	1.579
9%	35,684.41	3.913	28,939.69	3.467	34,202.00	4.134	61,931.04	2.547	76,497.79	1.672
9½%	37,666.88	4.130	30,547.45	3.660	36,102.11	4.364	65,371.65	2.689	80,747.67	1.765
10%	39,649.34	4.348	32,155.21	3.853	38,002.22	4.594	68,812.26	2.830	84,997.55	1.858

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.
PIPE LINE DIVISION.

SUMMARY SHOWING RETURN ON INVESTED CAPITAL FOR THE YEARS 1934 TO 1937 AND THE NINE MONTHS ENDED 30TH. SEPTEMBER, 1938 (CONT'D.)

	1934		1935		1936		1937		NINE MONTHS TO 30TH. SEPT. 1938	
	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS
ON A BASIS OF DEPRECIATION TWENTY-FIVE YEARS FROM 1ST. JANUARY, 1939										
TOTAL COST	$ 95,264.99	10.445	$ 90,422.13	10.834	$100,650.61	12.166	$214,513.63	8.822	$ 331,168.74	7.238
NET PROFIT FOR YEAR	132,742.67	14.555	116,585.32	13.970	98,212.81	11.874	329,290.15	13 542	439,839.02	9.612
TOTAL NET INVESTMENT	407,794.43		333,082.57		394,707.95		708,344.73		1,161,570.74	
RETURN ON INVESTMENT (ACTUAL)	32.55%		35%		24.88%		46.49%		50.49%	
RETURN ON INVESTMENT AT 6% PER ANNUM	$ 24,467.66	2.683	$ 19,984.95	2.395	$ 23,682.48	2.863	$ 42,500.68	1.748	$ 52,270.68	1.142
7%	28,545.61	3.130	23,315.78	2.794	27,629.56	3.340	49,584.13	2.039	60,982.46	1.333
7½%	30,584.58	3.353	24,981.19	2.993	29,603.10	3.579	53,125.65	2.185	65,338.35	1.428
8%	32,623.55	3.577	26,646.61	3.193	31,576.64	3.817	56,667.58	2.331	69,694.25	1.523
8½%	34,662.52	3.801	28,312.02	3.392	33,550.18	4.056	60,209.30	2.476	74,050.13	1.618
9%	36,701.50	4.024	29,977.43	3.592	35,523.72	4.294	63,751.03	2.622	78,406.02	1.714
9½%	38,740.47	4.248	31,642.84	3.791	37,497.26	4.533	67,292.75	2.768	82,761.92	1.809
10%	40,779.44	4.471	33,308.26	3.991	39,470.80	4.772	70,834.47	2.913	87,[illegible]	1.904
ON A BASIS OF DEPRECIATION THIRTY YEARS FROM 1ST. JANUARY, 1939										
TOTAL COST	$ 94,101.72	10.318	$ 89,587.47	10.734	$ 99,537.71	12.031	$212,032.16	8.719	$ 327,864.69	7.165
NET PROFIT FOR YEAR	133,905.94	14.682	117,419.98	14.070	99,325.71	12.009	331,771.62	13.645	443,143.07	9.685
TOTAL NET INVESTMENT	416,394.74		341,896.66		405,794.87		723,523.53		1,182,447.03	
RETURN ON INVESTMENT (ACTUAL)	32.16%		34.34%		24.48%		45.85%		49.97%	
RETURN ON INVESTMENT AT 6% PER ANNUM	$ 24,983.68	2.739	$ 20,513.92	2.458	$ 24,347.69	2.943	$ 43,411.41	1.785	$ 53,210.12	1.163
7%	29,147.63	3.196	23,932.90	2.868	28,405.64	3.434	50,646.65	2.083	62,078.47	1.357
7½%	31,229.60	3.424	25,642.40	3.072	30,434.62	3.679	54,264.26	2.232	66,512.65	1.454
8%	33,311.58	3.652	27,351.89	3.277	32,463.59	3.924	57,881.88	2.380	70,946.82	1.581
8½%	35,393.55	3.881	29,061.39	3.482	34,492.56	4.170	61,499.50	2.529	75,381.00	1.647
9%	37,475.53	4.109	30,770.88	3.687	36,321.54	4.415	65,117.12	2.678	79,615.17	1.744
9½%	39,557.50	4.337	32,480.37	3.892	38,550.51	4.660	68,734.74	2.827	84,249.35	1.841
10%	41,639.47	4.566	34,109.87	4.097	40,579.49	4.905	72,352.35	2.976	88,683.53	1.938

EXHIBIT 88 CONTINUED.

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.
PIPE LINE DIVISION.

SUMMARY SHOWING RETURN ON INVESTED CAPITAL FOR THE YEARS 1934 TO 1937 AND THE NINE MONTHS ENDED 30TH. SEPTEMBER, 1938 (CONT'D.)

	1934		1935		1936		1937		NINE MONTHS TO 30TH. SEPT. 1938.	
	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS.	AMOUNT	AMOUNT PER BBL. IN CENTS	AMOUNT	AMOUNT PER BBL. IN CENTS
ON A BASIS OF DEPRECIATION AS SHOWN BY THE BOOKS OF THE COMPANY										
TOTAL COST	$121,524.67	13.324	$108,553.54	13.007	$112,338.11	13,580	$228,675.11	9.404	$ 362,813.16	7.929
NET PROFIT FOR YEAR	106,482.99	11.676	98,453.91	11.797	86,525.31	10.460	315,128.67	12.900	408,194.60	8.921
TOTAL NET INVESTMENT	203,581.05		130,585.44		195,182.20		655,054.94		965,637.97	
RETURN ON INVESTMENT (ACTUAL)	52.30%		75.39%		44.33%		48.11%		56.36%	
RETURN ON INVESTMENT										
AT 6% PER ANNUM	$ 12,214.86	1.339	$ 7,835.13	.939	$ 11,710.93	1.416	$ 39,303.30	1.616	$ 43,453.71	.950
7%	14,250.67	1.563	9,140.98	1.095	13,662.75	1.652	45,853.85	1.886	50,696.00	1.108
7½%	15,268.58	1.674	9,793.91	1.174	14,638.66	1.770	49,129.12	2.021	54,317.14	1.187
8%	16,286.48	1.786	10,446.84	1.252	15,614.38	1.888	52,404.40	2.155	57,938.28	1.266
8½%	17,304.39	1.897	11,099.76	1.330	16,590.49	2.006	55,679.67	2.290	61,559.42	1.345
9%	18,322.29	2.009	11,752.69	1.408	17,566.40	2.123	58,954.95	2.425	65,180.57	1.425
9½%	19,340.20	2.121	12,405.62	1.486	18,542.31	2.241	62,230.22	2.559	68,801.71	1.504
10%	20,358.10	2.232	13,058.54	1.565	19,518.22	2.359	65,505.49	2.694	72,422.85	1.583

Exhibit 88 continued.

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

PIPE LINE DIVISION.

STATEMENT OF REVENUE AND EXPENDITURE FOR THE YEAR 1934.

EXPENDITURE.

Direct Operating Costs - Oil Gathering Lines			
Labor	$ 8,417.53		
" - Sundry	3,474.75		
Repairs to Buildings and Equipment	2,132.10		
Repairs to Lines	577.92		
Cost of Installation of Equipment	923.32		
Sundry Supplies	207.96		
Water	60.00		
Miscellaneous	926.68		
Transportation - Including Automobiles	1,735.66	$18,455.92	
Direct Operating Costs - Calgary Trunk Delivery Line			
Linewalkers' Wages	$ 1,554.85		
Ordinary Line Repairs and Supplies	1,268.11		
Pumpers' Wages	3,515.55		
Pumphouse Repairs and Supplies	511.32		
Fuel and Water	420.00		
Turner Valley Office Payroll	1,284.50		
Miscellaneous	682.06		
Extraordinary Line Repairs	7,949.37		
Sundry Labor	519.17		
Transportation - Including Automobiles	466.06	$18,170.98	
Direct Taxes			
Oil Gathering Lines	$ 1,091.11		
Calgary Trunk Delivery Lines	2,047.25	3,138.36	
Total Direct Operating Costs			$39,765.26

Proportion of Utility Expenses and Service Units

	Total Expenses	Taxes	
Boiler Plant Expense	$25,759.48	$ 58.46	
Electric Plant Expense	20,519.97	584.17	
Turner Valley Office Expense	11,239.44		
Engineering	4,362.67		
Laboratory	9,520.14		
General Tool Rooms Expense	5,141.62		
Fuel Gas Lines	2,077.49	126.81	
Trucks and Tractor	9,145.71	82.80	
Company Garage	2,300.19	131.34	
Water System	21,717.68	199.90	
Forge and Machine Shop	4,902.90	225.23	
Storehouse	1,632.47	1,060.54	
Residential Quarters	547.76	644.40	
Employees' Garage	588.73	25.10	
Carried Forward	$45,650.69	$3,138.75	$39,765.26

REVENUE

Deliveries to Refineries	871,154	Barrels	@ 25¢	$217,788.50
Deliveries to Local Sales Station	81,753	"	@ 12½¢	10,219.16
Carried Forward				$228.007.66

EXHIBIT 88 CONTINUED.

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

PIPE LINE DIVISION.

STATEMENT OF REVENUE AND EXPENDITURE FOR THE YEAR 1934 (CONT'D.)

EXPENDITURE.	TOTAL EXPENSES	TAXES			REVENUE	
BROUGHT FORWARD				$ 39,765.26	BROUGHT FORWARD	$228,007.66
PROPORTION OF UTILITY EXPENSES AND SERVICE UNITS (CONT'D.)						
BROUGHT FORWARD	$45,650.69	$ 3,138.75				
CAMP AND SANITATION EXPENSE	720.28	5.54				
FIRE EQUIPMENT EXPENSE	1,801,79					
USED MATERIAL WAREHOUSE	2,519.92					
DITCHING MACHINE EXPENSES	755.97	4.50				
	$51,448.65	$ 3,148.79				
		51,448.65				
7.94142% OF		$54,597.44	$4,335.81			
PROPORTION OF ADMINISTRATIVE AND GENERAL EXPENSES						
ADMINISTRATION AND GENERAL EXPENSES		$76,097.55				
CORPORATION AND BUSINESS TAXES		718.84				
SURPLUS PROPERTY EXPENSES		2,882.28				
SURPLUS PROPERTY TAXES		620.22				
ANNUITIES AND BENEFITS		2,508.35				
EMPLOYEES' GROUP INSURANCE		1,335.79				
STOCK PLAN BONUS		7,869.38				
SALES OF MATERIALS AND SUPPLIES, INVENTORY ADJUSTMENTS, BAD DEBTS, SUNDRY CREDITS, LESS MISCELLANEOUS OPERATING CHARGES		15,655.74				
7.94142% OF		$76,378.67	$6,555.10	10,890.91		
TOTAL DIRECT OPERATING COSTS AND A PROPORTION OF UTILITIES, SERVICE UNITS AND GENERAL AND ADMINISTRATIVE EXPENSES				$ 50,656.17		
OPERATING PROFIT, BEFORE PROVISION FOR DEPRECIATION, INCOME TAXES AND LOSSES ON SALES OR RETIREMENTS OF EQUIPMENT				177,351.49		
				$228,007.66		$228,007.66

EXHIBIT 88 CONTINUED.

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

PIPE LINE DIVISION.

STATEMENT OF REVENUE AND EXPENDITURE FOR THE YEAR 1935.

EXPENDITURE.

DIRECT OPERATING COSTS - OIL GATHERING LINES			
LABOR	$10,758.60		
" SUNDRY	3,091.72		
REPAIRS TO BUILDINGS AND EQUIPMENT	3,486.42		
REPAIRS TO LINES	1,288.37		
COST OF INSTALLATION OF EQUIPMENT	196.29		
SUNDRY SUPPLIES	72.81		
WATER	120.00		
MISCELLANEOUS	952.86		
TRANSPORTATION - INCLUDING AUTOMOBILES	2,468.55	$22,435.62	
DIRECT OPERATING COSTS - CALGARY TRUNK DELIVERY LINE.			
LINE WALKERS' WAGES	$ 1,532.00		
ORDINARY LINE REPAIRS AND SUPPLIES	233.45		
PUMPERS' WAGES	3,471.61		
PUMPHOUSE REPAIRS AND SUPPLIES	63.32		
FUEL AND WATER	390.00		
TURNER VALLEY OFFICE PAYROLL	975.00		
MISCELLANEOUS	661.17		
EXTRAORDINARY LINE REPAIRS	3,691.94		
SUNDRY LABOR	56.45		
TRANSPORTATION - INCLUDING AUTOMOBILES	1,045.38	12,120.32	
DIRECT TAXES			
OIL GATHERING LINES	$ 875.00		
CALGARY TRUNK DELIVERY LINES	1,337.36	2,212.36	
TOTAL DIRECT OPERATING COSTS			$ 36.768.30

PROPORTION OF UTILITY EXPENSES AND SERVICE UNITS

	TOTAL EXPENSES	TAXES	
BOILER PLANT EXPENSE	$31,516.16	$ 155.87	
ELECTRIC PLANT EXPENSE	20,313.12	566.30	
TURNER VALLEY OFFICE EXPENSE	11,277.84		
ENGINEERING	4,530.54		
LABORATORY	12,071.63		
GENERAL TOOL ROOM EXPENSE	10,099.01		
FUEL GAS LINES	4,884.07	63.39	
TRUCKS AND TRACTORS	15,944.26	88.74	
COMPANY GARAGE	1,639.09	83.17	
WATER SYSTEM	15,955.23	236.32	
FORGE AND MACHINE SHOP	14,362.75	191.07	
STOREHOUSE	5,767.64	1,460.05	
CARRIED FORWARD	$44,301.58	$2,844.91	$ 36.768.30

REVENUE

DELIVERIES TO REFINERIES 802.592 BARRELS @ 25¢		$200,648.00
DELIVERIES TO LOCAL SALES STATION		
17,155 BARRELS @ 12½¢	$ 2,144.39	
46,834 " @ 9¢	4,215.06	6,359.45
63,989 "		
CARRIED FORWARD		$207,007.45

Exhibit 88 Continued.

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ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

PIPE LINE DIVISION.

STATEMENT OF REVENUE AND EXPENDITURE FOR THE YEAR 1935 (CONT'D.)

EXPENDITURE.

	Total Expenses	Taxes		
Brought Forward				$ 36,768.30
Proportion of Utility Expenses and Service Units (Cont'd.)				
Brought Forward	$44,301.58	$ 2,844.91		
Residential Quarters	1,638.17	631.00		
Employees' Garage	422.03	10.00		
Camp and Sanitation Expense	983.83	8.49		
Fire Equipment Expense	3,794.93			
Used Material Warehouse	1,570.23			
Ditching Machine Expenses	1,320.91	4.50		
	$47,269.46	$ 3,498.90		
		47,269.46		
4.25365% of		$50,768.36	$ 2,159.50	
Proportion of Administration and General Expenses				
Administration and General Expenses		$76,607.74		
Corporation and Business Taxes		718.23		
Surplus Property - Expenses		950.73		
Taxes		600.46		
Annuities and Benefits		1,291.00		
Employees' Group Insurance		1,593.32		
Stock Plan Bonus		4,113.59		
Sale of Material and Supplies, Inventory Adjustments, Bad Debts, Sundry Credits, Less Miscellaneous Operating Charges		33,321.95		
4.25365% of		$52,553.12	2,235.42	4,394.92
Total Direct Operating Costs and a Proportion of Utilities, Service Units and General and Administration Expenses				$ 41,163.22
Operating Profit, before Provision for Depreciation, Income Taxes and Losses on Sales or Retirements of Equipment				165,844.23
				$207,007.45

REVENUE.

Brought Forward	$207,007.45
	$207,007.45

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

PIPE LINE DIVISION.

STATEMENT OF REVENUE AND EXPENDITURE FOR THE YEAR 1936.

EXPENDITURE

Direct Operating Costs – Oil Gathering Lines			
Superintendence	$ 1,423.46		
Labor-Regular	6,919.12		
Minor Repairs – Field Pumps and Tanks	1,904.96		
Extraordinary Repairs – Field Pumps and Tanks	172.52		
Ordinary Maintenance – Field Oil Lines	6,337.15		
Extraordinary Repairs – Field Oil Lines	1,679.27		
Ordinary Maintenance – Oil Gathering Lines and Tanks in Plant Yard	5,789.96		
Extraordinary Repairs – Oil Gathering Lines and Tanks in Plant Yard	2.76		
Gasoline and Oil	50.91		
Water and Fuel	208.61		
Engineering Department Expense	715.06		
Miscellaneous Expenses	965.05		
Proportion – Turner Valley Office Payroll	6,064.00		
Transportation – Including Automobiles	2,570.69	$34,803.52	
Direct Operating Costs – Calgary Trunk Delivery Line			
Superintendence	$ 525.50		
Linewalkers' Wages and Expenses	1,634.97		
Pumpers' Wages	3,493.87		
Ordinary Line Maintenance	2,157.17		
Ordinary Pumphouse Maintenance	798.69		
Ordinary Tankage Maintenance	28.52		
Water and Fuel	301.00		
Transportation – Including Automobiles	376.08		
Miscellaneous Expenses	1,000.26	10,316.06	
Direct Taxes			
Oil Gathering Lines	$1,186.76		
Calgary Trunk Delivery Line	1,180.58	2,367.34	
Total Direct Operating Costs			$ 47,486.92
Carried Forward			$ 47,486.92

REVENUE

Deliveries to Refineries	545,683 Barrels @ 25¢	$136,420.75	
	261,355 " @ 22½¢	58,804.87	$195,225.62
	807,038 "		
Deliveries to Local Sales Station	40,420 Barrels @ 9¢		3,637.80
Carried Forward			$198,863.42

EXHIBIT 88 CONTINUED.

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ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

PIPE LINE DIVISION.

STATEMENT OF REVENUE AND EXPENDITURE FOR THE YEAR 1936 (CONT'D.)

EXPENDITURE					REVENUE.	
BROUGHT FORWARD				$ 47,486.92	BROUGHT FORWARD	$198,863.42
PROPORTION OF UTILITY EXPENSES AND SERVICE UNITS						
	TOTAL EXPENSES	TAXES				
BOILER PLANT EXPENSES	$36,451.05	$ 92.84				
ELECTRIC PLANT EXPENSES	24,019.34	581.00				
TURNER VALLEY OFFICE EXPENSES	11,761.98	162.43				
ENGINEERING EXPENSE	5,331.99					
LABORATORY EXPENSE	14,969.55					
PLANT TOOLS EXPENSE	4,177.32					
FUEL GAS LINES EXPENSE	11,460.55	133.96				
TRUCKS AND TRACTORS	9,660.59	215.46				
COMPANY GARAGE	1,305.14	105.75				
WATER SYSTEM	10,529.11	477.16				
FORGE AND MACHINE SHOP	8,541.53	435.51				
STOREHOUSE	4,442.32	3,346.25				
RESIDENTIAL QUARTERS	2,051.53	738.55				
EMPLOYEES' GARAGE	444.98	31.44				
CAMP AND SANITATION EXPENSE	2,194.90	6.26				
FIRE EQUIPMENT EXPENSE	4,665.35	44.95				
DITCHING MACHINE EXPENSE	233.24	5.40				
USED MATERIAL WAREHOUSE EXPENSE	56.15					
	$50,642.20	$6,376.96				
		80,642.20				
8.28807% OF		$87,019.16	$ 7,212.21			
PROPORTION OF ADMINISTRATIVE AND GENERAL EXPENSES						
ADMINISTRATION AND GENERAL EXPENSES		$68,685.83				
CORPORATION AND BUSINESS TAXES		718.82				
ANNUITIES AND BENEFITS		995.62				
EMPLOYEES' GROUP INSURANCE		1,982.32				
SURPLUS PROPERTY EXPENSE		848.04				
SURPLUS PROPERTY TAXES		124.12				
SALES OF MATERIALS AND SUPPLIES, INVENTORY ADJUSTMENTS, BAD DEBTS, SUNDRY CREDITS LESS MISCELLANEOUS OPERATING CHARGES		1,027.52				
8.28807% OF		$72,327.43	5,994.55	13,206.76		
TOTAL DIRECT OPERATING COSTS AND A PROPORTION OF UTILITIES, SERVICE UNITS AND ADMINISTRATIVE AND GENERAL EXPENSES				$ 60,693.68		
OPERATING PROFIT, BEFORE PROVISION FOR DEPRECIATION, INCOME TAXES AND LOSSES ON SALES OR RETIREMENTS OF EQUIPMENT				138,169.74		
				$198,863.42		$198,863.42

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

PIPE LINE DIVISION.

STATEMENT OF REVENUE AND EXPENDITURE FOR THE YEAR 1937.

EXPENDITURE

DIRECT OPERATING COSTS - OIL GATHERING LINES			
LABOR			
DEPT. HEADS OR FOREMEN	$ 2,419.75		
GAUGERS, LINEWALKERS AND LABORATORY TEST MEN	13,345.66		
REPAIRS TO PUMPS	1,089.60		
REPAIRS TO ELECTRICAL EQUIPMENT	108.13		
REPAIRS TO BOILERS	149.25		
REPAIRS TO PIPE LINES AND TANKS	5,513.64		
REPAIRS - GENERAL	387.75		
CLERICAL	2,587.96		
UTILITY	1,826.56	$ 27,428.30	
MATERIAL			
SMALL TOOLS AND SUPPLIES	$ 332.85		
REPAIRS TO PUMPS	4,209.43		
REPAIRS TO ELECTRICAL EQUIPMENT	2.27		
REPAIRS TO BOILERS	200.22		
REPAIRS TO PIPE LINES AND TANKS	3,767.44		
REPAIRS - GENERAL	50.65		
LUBRICATING OIL, GREASE AND GASOLINE	66.90	8,629.75	
TRANSPORTATION - INCLUDING AUTOMOBILES		4,905.94	
FUEL, WATER AND WATER TREATMENT		963.65	
SUPERINTENDENCE		1,320.00	
ALL OTHER EXPENSES		1,148.80	$44,396.44
DIRECT OPERATING COSTS - CALGARY TRUNK DELIVERY LINES			
LABOR			
DEPT. HEADS OR FOREMEN	$ 1,223.00		
PUMPERS, LINEWALKERS, LABORATORY TEST MEN	5,117.51		
REPAIRS TO PUMPS	1,059.16		
REPAIRS TO METERS	51.85		
REPAIRS TO ELECTRICAL EQUIPMENT	114.85		
REPAIRS TO BOILERS	4.00		
REPAIRS TO PIPE LINES AND TANKS	1,025.13		
REPAIRS TO BUILDINGS	118.90		
REPAIRS - GENERAL	51.40		
CLERICAL	987.97		
UTILITY	261.75	$10,015.52	

REVENUE

DELIVERIES TO REFINERIES	-	1,252,105 BARRELS @ 22½¢	$281,723.68	
		1,167,679 " @ 17¢	198,505.43	
		2,419,784 "		
	-	ADJUSTMENT OF 1936	3,983.10	$484,212.21
DELIVERIES TO LOCAL SALES STATION	-	23,466 BARRELS @ 9¢		2,111.94
PIPE LINE ADJUSTMENT	-	30,801 BARRELS AT AN AVERAGE OF $1,8661		57,479.63

EXHIBIT 88 CONTINUED.

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

PIPE LINE DIVISION.

STATEMENT OF REVENUE AND EXPENDITURE FOR THE YEAR 1937 (CTON'D.)

EXPENDITURE

BROUGHT FORWARD			$44,396.44	
DIRECT OPERATING COSTS -				
CALGARY TRUNK DELIVERY LINE (CONT'D.)				
BROUGHT FORWARD		$10,015.52		
MATERIAL				
SMALL TOOLS AND SUPPLIES	$ 246.15			
REPAIRS TO PUMPS	2,165.81			
REPAIRS TO METERS	119.55			
REPAIRS TO ELECTRICAL EQUIPMENT	9.03			
REPAIRS TO PIPE LINES AND TANKS	632.18			
REPAIRS TO BUILDINGS	9.36			
REPAIRS - GENERAL	2.16			
LUBRICATING OIL, GREASE AND GASOLINE	77.95	3,262.19		
TRANSPORTATION - INCLUDING AUTOMOBILES		1,227.71		
FUEL, WATER AND WATER TREATMENT		216.80		
SUPERINTENDENCE		1,680.00		
ALL OTHER EXPENSE		667.05	17,069.27	
DIRECT TAXES				
OIL GATHERING LINES		$1,554.00		
CALGARY TRUNK DELIVERY LINES		1,840.55	3,394.55	
TOTAL DIRECT OPERATING COSTS				$64,860.26

PROPORTION OF UTILITY EXPENSES AND SERVICE UNITS

	TOTAL EXPENSES	TAXES	
BOILER PLANT EXPENSE	$25,529.69)	$ 697.55	
ELECTRIC PLANT EXPENSE	24,218.96)		
TURNER VALLEY OFFICE EXPENSE	14,501.57	161.07	
ENGINEERING	7,710.02		
LABORATORY	12,512.94		
GENERAL PLANTS EXPENSE	9,183.12	4.19	
GENERAL TOOL ROOM EXPENSE	1,681,92		
FUEL GAS LINES	8,501.93		
TRUCKS AND TRACTORS	1,081.15	289.34	
COMPANY GARAGE	2,028.37	118.48	
WATER SYSTEM	10,643.52	610.58	
FORGE AND MACHINE SHOP	4,244.11	510.62	
STOREHOUSE	97.16	4,458.83	
CARRIED FORWARD	$85,745.84	6,850.66	$64,860.26

REVENUE

BROUGHT FORWARD	$543,803.78
CARRIED FORWARD	$543,803.78

Exhibit 88 continued.

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ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

PIPE LINE DIVISION.

STATEMENT OF REVENUE AND EXPENDITURE FOR THE YEAR 1937 (Cont'd.)

EXPENDITURE					REVENUE.	
Brought Forward				$ 64,860.26	Brought Forward	$543,803.78
Proportion of Utility Expenses and Service Units (Cont'd.)						
	Total Expenses	Taxes				
Brought Forward	$85,745.84	$ 6,850.66				
Residential Quarters	3,117.53	963.71				
Employees' Garage	683.00	22.27				
Camp and Sanitation Expense	2,079.28	6.85				
Fire Equipment Expense	4,087.19	46.55				
Used Material Warehouse	1,487.10					
Ditching Machine Expense	852.25	5.85				
	$96,686.11	$ 7,895.89				
		96,686.11				
14.18656% of		$104,582.00	$14,836.59			
Proportion of Administrative and General Expenses						
Administrative and General Expenses		$ 76,989.07				
Vacation Expenses		16,181.25				
Corporation and Business Taxes		35,898.18				
Annuities and Benefits		2,170.58				
Employees' Group Insurance		2,592.44				
Surplus Property Expense		4,640.59				
Surplus Property Taxes		210.00				
Sales of Materials and Supplies, Trucking Suspense, Inventory Adjustments, Bad Debts, Sundry Credits less Miscellaneous Operating Charges		17,183.02				
14.18656% of		$121,498.23	17,236.42	32,073.01		
Total Direct Operating Costs and a Proportion of Utilities, Service Units and General and Administrative Expenses				$ 96,933.27		
Operating Profit before Provision for Depreciation, Income Taxes and Losses on Sales or Retirements of Equipment				446,870.51		
				$543,803.78		$543,803.78

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

PIPE LINE DIVISION.

STATEMENT OF REVENUE AND EXPENDITURE FOR THE NINE MONTHS ENDED 30TH. SEPTEMBER, 1938.

EXPENDITURE

DIRECT OPERATING COSTS - OIL GATHERING LINES			
LABOR -			
DEPT. HEADS OR FOREMEN	$ 2,698.12		
GAUGERS, LINEWALKERS, LABORATORY TEST MEN	22,666.95		
REPAIRS-PUMPS	4,912.16		
-ELECTRICAL EQUIPMENT	202.40		
-BOILERS	191.40		
-PIPE LINES AND TANKS	5,037.03		
-BUILDINGS	384.33		
-GENERAL	3,427.52		
CLERICAL	3,305.65		
UTILITY	2,759.99	$ 45,585.75	
ATERIAL -			
SMALL TOOLS AND SUPPLIES	$ 4,265.97		
REPAIRS-PUMPS	7,966.52		
-ELECTRICAL EQUIPMENT	567.24		
-BOILERS	533.46		
- PIPE LINES AND TANKS	4,646.28		
-BUILDINGS	644.08		
-GENERAL	870.12		
LUBRICATING OIL, GREASE AND GASOLINE	586.17	20,079.84	
RANSPORTATION		6,380.91	
UEL, WATER AND WATER TREATMENT		2,015.37	
TILITY EXPENSE		2,207.68	
ANITOR'S SUPPLIES		22.66	
LL OTHER EXPENSE		1,788.30	
OWER PURCHASED		3,654.97	$ 81,735.48
DIRECT OPERATING COSTS - CALGARY TRUNK DELIVERY LINES			
LABOR-			
DEPT. HEADS OR FOREMEN	$ 2,810.63		
PUMPERS, LINEWALKERS AND LABORATORY TEST MEN	8,866.81		
REPAIRS-PUMPS	1,250.91		
-METERS	12.95		
-ELECTRICAL EQUIPMENT	19.15		
CARRIED FORWARD	$ 12,960.45		$ 81,735.48

REVENUE

DELIVERIES TO REFINERIES	48,560 BARRELS	@ 17¢	$ 8,255.20	
	4,514,142 "	@ 15¢	677,121.30	$685,376.50
	4,562,702 "			
DELIVERIES TO LOCAL SALES STATION	25,826 BARRELS	@ 7½¢		1,936.95
PIPE LINE ADJUSTMENT	64,029 BARRELS	AT AN AVERAGE OF $1,3071		83,694.31
CARRIED FORWARD				$771,007.76

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ROYALITE OIL COMPANY LIMITED
CALGARY, ALBERTA.

PIPE LINE DIVISION.

STATEMENT OF REVENUE AND EXPENDITURE FOR THE NINE MONTHS ENDED 30TH. SEPTEMBER, 1938 (CONT'D.)

EXPENDITURE				
BROUGHT FORWARD			$ 81,735.48	
DIRECT OPERATING COSTS -				
CALGARY TRUNK DELIVERY LINES (CONT'D.)				
LABOR (CONT'D.)				
BROUGHT FORWARD	$ 12,960.45			
REPAIRS (CONT(D.)				
-PIPE LINES AND TANKS	2,657.10			
-BUILDINGS	222.20			
-GENERAL	988.30			
-CLERICAL	2,011.70			
-UTILITY	404.83	$ 19,244.58		
ATERIAL -				
SMALL TOOLS AND SUPPLIES	$ 3,946.00			
REPAIRS-PUMPS	2,445.40			
-METERS	217.28			
-ELECTRICAL EQUIPMENT	10.01			
-BOILERS	2.79			
-PIPE LINES AND TANKS	2,231.58			
-BUILDINGS	77.47			
-GENERAL	319.42			
UBRICATING OIL, GREASE AND GASOLINE	1,728.55	10,978.50		
RANSPORTATION		2,224.57		
UEL, WATER AND WATER TREATMENT		804.22		
TILITY EXPENSE		1,777.16		
ANITOR'S SUPPLIES		2.90		
LL OTHER EXPENSES		1,718.95		
RENTAL OF STORAGE TANKS AT IMPERIAL OIL REFINERY, AMOUNTING TO $14,583.30, ELIMINATED.			$ 36,750.88	
HOP JOB ORDERS			1,205.98	
IRECT TAXES				
OIL GATHERING LINES, CALGARY TRUNK DELIVERY LINES, PUMPS AND TANKS			5,744.32	
ROFESSIONAL FEES AND EXPENSES			2,964.76	
OTAL DIRECT OPERATING COSTS				$128,401.42
CARRIED FORWARD				$128.401.42

REVENUE	
BROUGHT FORWARD	$771,007.76
CARRIED FORWARD	$771,007.76

EXHIBIT 88 CONTINUED.

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ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.
PIPE LINE DIVISION.

STATEMENT OF REVENUE AND EXPENDITURE FOR THE NINE MONTHS ENDED 30TH. SEPTEMBER, 1938 (CONT'D.)

EXPENDITURE					REVENUE	
BROUGHT FORWARD				$128,401.42	BROUGHT FORWARD	$ 771,007.76
PROPORTION OF UTILITY EXPENSES AND SERVICE UNITS						
	T LTOTAL EXPENSES	TAXES				
BOILER PLANT EXPENSE	$ 19,344.75	$ 352.95				
ELECTRIC PLANT EXPENSE	18,215.44	531.20				
TURNER VALLEY OFFICE EXPENSE	14,995.33	137.98				
ENGINEERING	8,120.02	4.54				
LABORATORY	9,962.86					
GENERAL PLANTS EXPENSE	6,603.24					
FUEL GAS LINES	10,624.42					
TRUCKS AND TRACTORS	2,804.29	187.30				
COMPANY GARAGE	1,066.14	75.50				
WATER SYSTEM	8,988.97	643.87				
FORGE AND MACHINE SHOP	2,896.74	221.21				
STOREHOUSE	345.22	5,956.05				
RESIDENTIAL QUARTERS	3,652.15	894.07				
EMPLOYEES' GARAGE	764.46	10.58				
CAMP AND SANITATION EXPENSE	1,708.53	6.24				
FIRE EQUIPMENT EXPENSE	5,286.62					
USED MATERIAL WAREHOUSE	6,090.23					
DITCHING MACHINE EXPENSE	1,768.93					
	$103,946.78	9,021.49				
		103,946.78				
18.29067% OF		$112,968.27	$ 20,662.65			
PROPORTION OF ADMINISTRATION AND GENERAL EXPENSES						
ADMINISTRATIVE AND GENERAL EXPENSES, INCLUDING ESTIMATED PROFESSIONAL FEES		$ 82,554.82				
VACATION EXPENSE		19,688.26				
CORPORATION AND BUSINESS TAXES		23,132.13				
ANNUITIES AND BENEFITS		2,117.42				
EMPLOYEES' GROUP INSURANCE		2,336.98				
SURPLUS PROPERTY EXPENSE		50.54				
SALES OF MATERIALS AND SUPPLIES, INVENTORY ADJUSTMENTS, BAD DEBTS, SUNDRY CREDITS, LESS MISCELLANEOUS OPERATING CHARGES		8,178.14				
18.29067% OF		$121,702.01	22,260.11	42,922.76		
TOTAL DIRECT OPERATING COSTS AND A PROPORTION OF UTILITIES, SERVICE UNITS AND GENERAL AND ADMINISTRATIVE EXPENSES				$171,324.18		
OPERATING PROFIT, BEFORE PROVISION FOR DEPRECIATION, INCOME TAXES AND LOSSES ON SALES OR RETIREMENTS OF EQUIPMENT				599,683.58		
				$771,007.76		$771,007.76

EXHIBIT 88 CONTINUED.

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

STATEMENT OF ADMINISTRATIVE AND GENERAL EXPENSES
FOR THE YEARS 1934 TO 1937 AND FOR THE NINE-MONTH PERIOD ENDED 30TH. SEPTEMBER, 1938.

	1934	1935	1936	1937	30TH SEPT. 1938.
SALARIES - ADMINISTRATIVE OFFICERS	$18,107.54	$19,275.26	$13,172.28	$12,650.72	$20,438.35
- EMPLOYEES - ADMINISTRATIVE OFFICES	22,648.18	21,531.53	17,893.80	21,265.58	21,648.97
TRAVELLING AND OTHER EXPENSES - OFFICERS AND EMPLOYEES	2,882.93	3,807.72	1,963.84	3,624.82	2,740.70
DIRECTORS' FEES	500.00	500.00	500.00	500.00	
TRAVELLING AND OTHER EXPENSES - DIRECTORS	6.00		175.00	267.34	561.80
PROFESSIONAL FEES AND EXPENSES	16,677.34	16,898.48	17,044.96	20,443.19	15,183.00 (EST.)
FEES AND EXPENSES - TRUSTEES, CAPITAL STOCK REGISTRARS AND TRANSFER AGENTS	793.24	691.27	558.73	332.79	43.79
INSURANCE - ADMINISTRATION AND GENERAL	175.91	286.27	504.00	637.77	540.90
RENTAL - ADMINISTRATION AND GENERAL OFFICES	1,020.15	887.40	683.97	698.92	893.99
REPAIRS - OFFICE FURNITURE AND APPLIANCES	166.19	260.60	131.87	177.58	347.20
TELEPHONE, TELEGRAPH AND CABLE	2,095.90	1,786.09	1,373.97	3,823.93	2,762.42
POSTAGE AND EXCISE STAMPS	982.06	1,086.14	1,142.66	1,284.87	1,032.14
STATIONERY AND OFFIC E SUPPLIES	1,281,38	1,425.98	980.94	1,574.60	1,805.63
SUBSCRIPTIONS AND DUES	110.45	48.96	97.55	119.83	614.00
CONTRIBUTIONS AND DONATIONS			219.55	461.10	785.23
DEATH BENEFITS			2,640.00	2,887.50	363.00
MEDICAL, SICKNESS AND ACCIDENT BENEFITS			296.19	367.50	70.00
WORKMEN'S COMPENSATION BOARD ACCIDENT ASSESSMENT	2,809.36	4,208.07	2,845.90	2,987.76	3,267.33
TORONTO OFFICE CHARGES				9.15	3,837.48
EMPLOYEES' WELFARE EXPENSES	1,698.77	2,064.84	2,508.59	2,511.07	1,446.77
MISCELLANEOUS EXPENSES - INCLUDING ROAD WORK, MEDICAL EXAMS, TRANSPORTATION, ETC. LESS ADJUSTMENTS FOR ALLOCATIONS AND DEPRECIATION SUSPENSE	4,142.15	3,231.67	5,069.49	1,028.63	4,172.12
	$76,097.55	$76,607.74	$68,685.83	$76,989.07	$82,554.82

EXHIBIT 88 CONTINUED.

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

PIPE LINE DIVISION.

STATEMENT OF CAPITAL INVESTMENT IN ALBERTA AS AT 30TH SEPTEMBER, 1938.

		GROSS VALUE
OIL GATHERING LINES		$ 282,276.51
CALGARY TRUNK DELIVERY LINES		
4" LINE	$136,153.77	
4" LINE - REGAL	102,316.62	
6" LINE	280,977.56	
PUMPS, PUMPHOUSES, ETC.	103,762.53	
EMERGENCY GASOLINE LINE AND SYNDRY EQUIPMENT	7,512.04	630,722.52
FIELD PUMPS		14,790.56
TANK FARM		182,394.27
MOTOR EQUIPMENT		26,500.19
SUNDRY EQUIPMENT		28,576.95
PUMPHOUSES		31,628.33
		$1,196,889.33
INCOMPLETE CONSTRUCTION, 30TH. SEPTEMBER, 1938		109,479.15
TOTAL PIPE LINE ASSETS		$1,306,368.48
CAPITAL VALUE OF UTILITIES AND SERVICE UNITS, THE SERVICES OF WHICH ARE UTILIZED BY THE PIPE LINE DIVISION		$1,125,366.78
INVENTORY OF MATERIALS		544,224.00
		$1,669,590.78
PROPORTION TO PIPE LINE DIVISION 18.29067%		$ 305,379.34
TOTAL OF PIPE LINE ASSETS AND A PROPORTION OF UTILITIES AND SERVICE UNITS		$1,611,747.82

NOTE: IN THE BOOKS OF THE COMPANY AT 30TH SEPTEMBER 1938, THE NET VALUE OF THE PIPE LINE ASSETS IS $1,166,197.25 WHICH IS THE ABOVE AMOUNT OF $1,306,368.48 LESS DEPRECIATION WRITTEN OFF AMOUNTING TO $140,171.23.

EXHIBIT 88 CONTINUED.

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

SUNDRY ASSETS

30TH. SEPTEMBER, 1938.

FUEL GAS LINES	$133,654.75
WATER LINES	183,432.55
BOILER PLANT	91,242.23
FORGE AND MACHINE SHOP	104,753.90
FIRE FIGHTING EQUIPMENT	14,747.31
COMPANY GARAGE	15,274.97
STOREHOUSE AND WAREHOUSE	56,378.11
ELECTRIC PLANT	122,948.07
SEWER LINES	32,748.91
EMPLOYEES GARAGE	5,720.39
RESIDENTIAL QUARTERS	121,231.44
OFFICE BUILDINGS	31,206.70
SUNDRY PLANT	58,192.72
SUNDRY BUILDINGS	2,995.20
ROAD EQUIPMENT	7,413.89
DITCHING MACHINE	7,561.15
SALVAGE DEPARTMENT	537.01
BOILER MAKERS' TOOLS	713.90
OFFICE FURNITURE	5,999.68
PERMANENT STEAM PLANTS	23,754.10
LABORATORY EQUIPMENT	4,207.52
FIELD NO. USED MATERIAL	28,330.27
SURPLUS EQUIPMENT	28,462.88
MOTOR EQUIPMENT - TRUCKS	23,359.38
AUTOS	20,499.75
	$1,125,366.78

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

LIST OF CHARGES FOR PIPE LINE TRANSPORTATION.

REFINERIES.

1925- 1927-	24th. November, 1925 to 28th. February, 1937 inclusive		No charge as price received covered products laid down at Refinery
1927-	1st. March to 31st. December inclusive-	-Crude Naphtha	5¢ per Barrel.
1928-	January to December inclusive	-Crude Naphtha	5¢ " "
		-Crude Oil	25¢ " "
1929-	January to April inclusive	-Crude Naphtha	5¢ " "
		-Crude Oil	30¢ " "
	May to December "		30¢ " "
1930-	January to December "		30¢ " "
1931-	January and part of February inclusive		30¢ " "
	Part of February to December "		15¢ " "
1932-	January to March inclusive		15¢ " "
	April to December "		30¢ " "
	- (Regal Oil - Oct. - 20¢)		
1933-	January to September inclusive		30¢ " "
	October to December "		25¢ " "
1934-	January to December "		25¢ " "
1935-	January to December "		25¢ " "
1936-	January to 3rd. October "		25¢ " "
	4th. October to 31st. December inclusive		22½¢ " "
1937-	January to August inclusive		22½¢ " "
	September to December "		17¢ " "
1938-	4th. January		17¢ " "
	5th. January to 30th. September inclusive		15¢ " "

LOCAL SALES STATION.

1931-	January to December inclusive	15¢ per Barrel.
1932-	January to March inclusive	15¢ " "
	April	30¢ " "
	May to December inclusive	15¢ " "
1933-	January to September inclusive	15¢ " "
	October to December "	12½¢ " "
1934-	January to December "	12½¢ " "
1935-	January to April "	12½¢ " "
	May to December "	9¢ " "
1936-	January to December "	9¢ " "
1937-	" " " "	9¢ " "
1938-	January to 30th. September inclusive	7½¢ " "

EXHIBIT 88 CONTINUED.

ROYALITE OIL COMPANY LIMITED - PIPE LINE DIVISION.
CALGARY, ALBERTA.

STATEMENT OF OIL MOVEMENTS BY PIPE LINES, SHOWING DEDUCTIONS AND LINE LOSSES FOR THE YEARS 1933 TO 1937 INCLUSIVE, AND NINE MONTHS ENDED 30TH. SEPTEMBER, 1938.

	1933		1934		1935		1936	
	BARRELS		BARRELS		BARRELS		BARRELS	
	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET
OPENING INVENTORY	8,600	8,600	15,774	15,774	16,569	16,569	17,804	17,804
DELIVERIES TO GATHERING SYSTEM FROM ABSORPTION PLANTS AND PRODUCING WELLS								
- PRODUCTS FROM WHICH A DEDUCTION FOR LINE LOSSES WAS MADE	482,036	468,046	5[illegible]085	567,257	789,328	765,673	904,226	877,726
- PRODUCTS FROM WHICH NO DEDUCTION FOR LINE LOSSES WAS MADE (ABSORPTION NAPHTHA	183,559	183,559	391,267	391,267	105,814	105,814		
DEDUCTIONS FOR LINE LOSSES		13,990		17,828		23,655		26,500
	674,195	674,195	992,126	992,126	911,711	911,711	922,030	922,030
RECEIVED FROM GATHERING SYSTEM AND TRUNK LINES								
AT REFINERY IN CALGARY		591,076		856,587		787,035		793,388
AT LOCAL SALES STATION IN TURNER VALLEY		45,684		93,211		81,339		78,333
USED IN FIELD								
CLOSING INVENTORY		15,774		16,569		17,804		22,846
		652,534		966,367		886,178		894,567
LINE LOSS - ACTUAL		21,661		25,759		25,533		27,463
		674,195		992,126		911,711		922,030
PIPE LINE ADJUSTMENT								
DEDUCTIONS FOR LINE LOSSES		13,990		17,828		23,655		26,500
ACTUAL LOSSES		21,661		25,759		25,533		27,463
LOSS OR GAIN ON ACTUAL LOSSES COMPARED WITH AMOUNT DEDUCTED FROM VENDORS		7,671		7,931		1,878		963
VALUE OF LOSS OR GAIN AT AVERAGE TURNER VALLEY PRICES		$22,446.04		$19,841.62		$ 4,384.77		$ 2,288.81
LOSS OR GAIN - IMPERIAL OIL LIMITED		$22,446.04		$19,841.62		$ 4,384.77		$998.89
- ROYALITE OIL COMPANY LIMITED								1,289.92
RATE OF DEDUCTIONS-IMPERIAL OIL LTD. DELIVERIES	3% ON ALL PRODUCTS		3% ON ALL PRODUCTS		3% ON ALL PRODUCTS		3% ON ALL PRODUCTS	
-B. A. OIL CO. LTD. DELIVERIES							3% NAPHTHA 2% CRUDE OIL	

1937 BARRELS			NINE MONTHS TO 30TH. SEPTEMBER, 1938. BARRELS	
GROSS	NET		GROSS	NET
22,846	22,846		32,823	32,823
2,516,860	2,455,942		4,614,479	4,526,250
		(DISTILLATE)	8,787	8,739
	60,918			88,277
2,539,706	2,539,706		4,656,089	4,656,089
	2,409,104			4,544,270
	73,166			25,826
				6,643
	32,823			55,102
	2,515.093			4,631,841
	24,613			24,248
	2,539,706			4,656,089
	60,918			88,277
	24,613			24,248
	36,305			64,029
	$68,738.95			$63,694.31
	$ 9,969.40			-
	58,769.55			$63,694.31
JAN. - SEPT. 1	SEPT. 1 - DEC. 31.		JAN. - SEPT. 1	FROM SEPT. 1
3%	3% NAPHTHA		3% NAPHTHA	2% NAPHTHA
3%	2% CRUDE OIL		2% CRUDE OIL	1% CRUDE OIL
	3% NAPHTHA		3% NAPHTHA	2% NAPHTHA
	2% CRUDE OIL		2% CRUDE OIL	1% CRUDE OIL

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J. J. FRAWLEY

The Province of Alberta

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IN THE MATTER OF THE PUBLIC INQUIRIES ACT

—and—

IN THE MATTER OF a Commission, dated the 12th day of October, A.D. 1938, to inquire into matters connected with Petroleum and Petroleum Products

Commissioners:

The Honourable MR. JUSTICE McGILLIVRAY
(*Chairman*)

—and—

L. R. LIPSETT, ESQ.

Session:

CALGARY, Alberta EXHIBITS

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Exhibit 89

ROYALITE OIL COMPANY LIMITED.
CALGARY, ALBERTA.

STATEMENT SHOWING OPERATING RESULTS AS PER PUBLISHED STATEMENTS TOGETHER WITH OTHER INFORMATION FOR YEARS 1931 TO 1937 INCLUSIVE.

Year ended 31st. Dec.	Net Income before Provision for Depreciation, Depletion or Income Tax	Provision for Depreciation.	Provision for Depletion	Income Tax	Net Profit for Year	Equity of Imperial Oil Limited in Earnings. Per-cent-age	Equity of Imperial Oil Limited in Earnings. Amount	Dividends Paid.	Balance of Earned Surplus Account
1931	$ 703,142.10	$ 299,816.67	$ 111,555.91	$ 34,265.43	$ 257,504.09	83.79%	$ 215,762.67	$ 250,000.00	$3,521,218.27
1932	585,911.52	434,193.29	50,675.80	22,805.68	78,236.75	83.96	65,687.58	750,000.00	2,835.963.57
1933	1,169.755.33	452,292.12	191,488.39	94,960.97	431,013.85	79.24	341,535.37	541,400.00	2,696.585.31
1934	1,707,564.92	475,266.95	278,472.07	142,867.15	810,958.75	71.42	579,186.74	832,484.25	2,678.242.75
1935	1,594.190.52	478,620.97	244,752.40	132,644.74	738,172.41	70.55	520,780.64	1,046,320.50	2,361,023.94
1936	1,716,564.15	471,069.50	274,172.11	169,966.27	801,356.27	69.71	558,625.45	1,049,958.00	2,100,273.68
1937	2,401,139.64	508.806,30	478,777.92	286,182.48	1,127,372.94	68.46	771,799.49	1,054,664.25	2,171,328.62
	$9,878.268.18	$3,120,065.80	$1,629,894.60	$883,692.72	$4,244,615.06	71.94%	$3,053,377.95	$5,524.827.00	

RECAPITULATION.

Net Profits, before provision for Depreciation, Depletion and Income Taxes		$9,878,268.18
Deduct Provision for		
Depreciation	$3,120,065.80	
Depletion	1,629,894.60	
Income Taxes	883,692.72	5,633,653.12
Net Profits for seven years		$4,244,615.06

Note:- Adjustments of profits during the above period were made in the Earned Surplus Account so that the net profits of $4,244,615.06 are due to be reduced by $76,806.29, leaving the net profits for the seven years at the amount of $4,167,808.77.

ANALYSIS OF EARNED SURPLUS ACCOUNT FOR YEARS 1931 to 1937.

Year ended 31st. Dec.	Balance at First of Year	Adjustments Add	Adjustments Deduct	Profit for Year.	Dividends Paid	Balance at End of Year.
1931	$3,528,346.85		$14,632.67	$ 257,504.09	$ 250,000.00	$3,521,218.27
1932	$3,521,218.27		13,491.45	78,236.75	750,000.00	2,835.963.57
1933	2,835,963.57		28,992.11	431,013.85	541,400.00	2,696,585.31
1934	2,696,585,31	$3,182.94		810,958.75	832,484.25	2,678,242.75
1935	2,678,242.75		9,070.72	738,172.41	1,046,320.50	2,361,023.94
1936	2,361,023.94		12,148.53	801,356.27	1,049,958.00	2,100,273.68
1937	2,100,273.68		1,653,75	1,127,372.94	1,054,664.25	2,171,328.62
		$3,182.94	$79,989.23	$4,244,615.06	$5,524,827.00	

RECAPITULATION

Balance, 1st. January, 1931		$3,528.346.85
Add Profits for Seven Years	$4,244,615.06	
Less Adjustments (Net)	76,806.29	4,167,808.77
		$7,696,155.62
Deduct Dividends Paid - Seven Years		5,524,827.00
Balance, 31st. December, 1937		$2,171,328.62

EXHIBIT 90
(a)

THIS INDENTURE, made in duplicate, this 18th day of September, one thousand nine hundred and thirty-six. BETWEEN:

IMPERIAL OIL LIMITED,
hereinafter called "Imperial",

OF THE FIRST PART:

- and -

THE BRITISH AMERICAN OIL COMPANY, LIMITED,
hereinafter called "B.A."

OF THE SECOND PART:

WHEREAS Imperial has excess refinery facilities at Calgary and B.A. is desirous of availing itself of these facilities to the extent of the excess capacity not needed by Imperial in accordance with the provisions hereinafter expressed;

NOW THEREFORE THIS INDENTURE WITNESSETH that in consideration of the premises and of the covenants and agreements herein contained, the parties hereto agree together as follows:

B.A. will deliver to Imperial at the latter's Calgary refinery approximately 360,000 barrels of crude oil, 60,000 barrels of naphtha and 100,000 barrels of absorption gasoline, maximum vapor pressure 20 lbs. Reid as produced by B.A. per year at an approximate average rate of 43,300 barrels per month, of crude and/or naphtha and absorption gasoline which Imperial shall process and shall deliver in B.A.'s tank cars at Imperial's siding or in trucks at Imperial's Calgary refinery, or by pipeline to B.A.'s Bell Refinery, the refined products thereof in accordance with the schedule of products, yields and specifications attached hereto and forming Schedule "A" hereof, provided that the bunker fuel oil shall be delivered only into B.A. tank cars or trucks at Imperial's Calgary plant and not by pipeline.

The yields of finished products from discolored naphthas as provided for in Schedule "A" have been arrived

EXHIBIT 90 (Continued)
(b)

at by determining yields from laboratory true boiling point analysis, and it is understood that should the quantities of discolored naphthas furnished by B.A. change with a change in quality at the same time, that a new schedule of yields and costs will be agreed upon by Imperial and B.A. covering the processing of such discolored naphthas. This revision to be determined by laboratory information in the same way as the figures in Schedule "B" were arrived at.

B.A. agrees to arrange with the Royalite Oil Company Limited for the transportation through their pipeline of all crude oil, naphthas and absorption gasoline from B.A.'s tanks in Turner Valley to the Imperial Oil Calgary Refinery tanks. Imperial agrees to act as B.A.'s representative to measure the quantity and quality of oil received in their storage tanks at Calgary. Imperial also agrees to measure with the representatives of B.A. and Royalite the quantity and quality of crude oil, naphtha and absorption gasoline delivered by B.A. to the Royalite Oil Company Limited in Turner Valley. Imperial will, subject to delivery thereof to Calgary tanks as aforesaid, credit B.A. with the quantity and quality of such crude oil, naphtha and absorption gasoline as measured in Turner Valley, and these measurements less deductions of 2% on crude oil and 3% on naphtha will be used as the basis of calculating the yields and cost as shown in Schedule "A".

Imperial agrees, subject to the provisions hereof, to provide sufficient available storage at its Calgary Refinery to receive crude oil, naphtha or absorption gasoline from B.A. at any time and in any quantity that the pipeline transporter of B.A. may deliver up to a maximum capacity to receive 6,000 barrels per day for ten con-

secutive days; should Imperial at any time be unable to accept delivery at its Calgary Refinery of B.A.'s oil from the transporter, Imperial will provide storage for said oil elsewhere. After any delivery of oil by the transporter has been commenced it will not be blocked or stopped by Imperial until the transporter has completed said delivery of oil.

Finished products for B.A. will be delivered according to the specifications on Schedule "A" and it is understood and agreed that Imperial corresponding products will be of the same specifications as made by Imperial as supplied for itself from Calgary Refinery. In the event that Imperial revise their specifications, for example by lowering the gravity, reducing the volatility, or lowering the vapor pressure, Imperial agrees upon request to deliver to B.A. on this contract products of the revised specifications.

Of the crude oil and naphtha delivered by B.A. to Imperial hereunder Imperial shall be entitled to use such quantities for fuel consumption and loss in its process as are shown on the attached Schedule "A", so that the net percentage of products to be delivered to B.A. shall be in accordance with that shown on Schedule "A".

B.A. shall pay to Imperial and Imperial shall receive processing, blending, handling, storing, shipping, depreciation, taxes, and general administration charges in accordance with said Schedule "A" attached hereto and forming part hereof.

Should B.A. be unable to delivery absorption gasoline to the extent required by the said Schedule "A", Imperial will sell to B.A. such deficiency for which B.A. shall pay $2.717 per barrel F.O.B. Calgary, based on the existing posted field price at Turner Valley of $2.33 per

EXHIBIT 90 (Continued)
(d)

barrel for absorption gasoline with Reid vapor pressure not exceeding 20 lbs. plus pipeage of $0.225, receiving storing and shipping $0.084 and loss 3%, $0.078, such price of $2.717 per barrel to be increased or decreased an amount corresponding to any increase or decrease in the said posted field price and/or said pipeage, receiving, storing and shipping and loss.

Imperial will allow B.A. on all cracked gasoline produced for B.A. by Imperial an equivalent of 68 C.F.R. rating as a base stock for blending leaded gasoline.

On the bunker fuel oil allowed as consumption Imperial will pay the sales tax. B.A. will pay sales tax on finished products.

Receipts of crude oil and of finished products shall be gauged by a representative of each party.

For each delivery of refined products hereunder Imperial shall supply B.A. with its inspection sheet covering its analysis of such delivery.

Imperial will add lead to and dye such products of B.A. as shall be designated by B.A. and in such amounts as shall meet the specifications called for on Schedule "A" for the products so designated. B.A. shall pay to Imperial the cost of lead only in addition to the processing, blending, handling, storing and shipping costs provided for in Shcedule "A" hereof.

B.A. will pay Imperial its processing, absorption gasoline and lead charges monthly on the 15th day of each month, for all such charges incurred during the proceeding calendar month.

The finished products shall be stored by Imperial for B.A. subject to the order of B.A. provided that should such storage tax the facilities of Imperial, B.A. will provide sufficient storage at Calgary to supply the de-

HIBIT 90
(e)

ficiency, to the extent of present equipment of B.A. at such point.

Should B.A. require gas oils or domestic heating oils an adjustment of yields will be made to the extent of a deduction of 1/2% gasoline and ½% fuel oil for each 1% of such gas oils or domestic heating oils so required.

Imperial shall be responsible for the quality and quantity of finished product up to the time of unloading of tank cars, and in the case of deliveries by pipeline into storage tanks until the expiration of 48 hours thereafter, after which time respectively the responsibility of Imperial shall cease; or in the case of tank car shipments, B.A. may gauge and agree with Imperial as to quantity, whereupon the car domes are to be immediately sealed and B.A. Shall be responsible for quantity thereafter. Imperial will at its Calgary Refinery supply B.A With adequate truck loading facilities for the delibery of any or all finished products. Imperial's responsibility for the quantity and quality of products shall cease on delivery into tank wagons or trucks.

At Calgary Imperial will deliver to B.A's Bell Refinery, gasoline, kerosene and tractor distillate and for the purpose of making the deliveries Imperial will run its lines to the boundary of the Bell plant and B. A. will complete the lines to its tanks. Imperial will not make delivery by pipe line of any bunker fuel oil.

All deliveries hereunder whether crude oil or processed products shall be adjusted as to quantity to a temperature of 60 degrees F.

EXHIBIT 90
(f)

Until delivery of refined products to B. A. the same shall be held at the risk of Imperial and Imperial shall adequately insure the same or shall indemnify and save harmless B. A. from any loss or damage resulting thereto or therefrom until such delivery.

Imperial shall not be construed to be agent of B. A. and the process herein referred to shall be free from control or supervision of B. A.

Imperial reserves unto itself the necessary refining capacity of its plant to meet its own requirements.

If Imperial at Calgary manufacture and market any existing or any new gasolines, kerosenes, distillates or fuel oil of specificiations different to or varying from the specifications set forth in Schedule "A" hereto, then it will upon request make available to B.A. such products or products and the yields and specifications as shown in the said Schedule "A" will be altered or amended accordingly.

Neither party shall be liable if prevented in the performance here of by strikes, accidents, fire, acts of God or any cause or reason beyond its control.

This contract shall be construed according to the laws of Ontario.

The parties hereto agree that in the event of any difference or dispute arising between them in respect of anything in this agreement contained or arising therefrom the same shall be submitted to arbitration. The party desiring to arbitrate any question shall appoint an arbitrator and shall notify the other party of the intention to arbitrate and of the appointment of the arbitrator and such other party shall thereupon within seven clear days after service of such notice appoint an arbitrator and the two arbitrators so appointed shall appoint a third arbitrator. The decision

EXHIBIT 90
(g)

of the arbitrators shall be final and binding upon both parties hereto. All proceedings under such arbitration shall be governed by the provisions of the Arbitration Act, Revised Statutes of Ontario, 1927, Chapter 97.

This contract shall remain in full force and effect for one year from the date hereof and thereafter until terminated as hereinafter provided. After the expiration of four months from the date hereof either party may terminate this contract by giving the other eight months' notice in writing of the intention so to do

IN WITNESS WHEREOF the parties hereto have caused their corporate seals to be affixed, evidenced by the hands of their proper officers in that behalf respectively, the day and year first above written.

SIGNED, SEALED and DELIVERED
In the presence of:

IMPERIAL OIL LIMITED

"L. C. McCloskey
Vice-President.

"J. A. Weir"
Assistant Secretary

(SEAL)

THE BRITISH AMERICAN OIL CO., LIMITED

"N.L. Ellsworth"
PRESIDENT.

"H. K Brondson
SECRETARY.

(SEAL).

(Attached to this agreement is
Schedule "A" specifications).

	Record Page.
EXHIBIT "91"	
A map prepared by the witness, Joseph H. Irwin, Geologist, showing the salients of New Valley and Calling Valley of the Turner Valley fields.	2151.

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EXHIBIT "92".	
Page 48 of a book issued by the Department of Lands and Mines of the Province of Alberta, entitled "Schedule of Wells Drilled for Oil and Gas to 1938", and showing results obtained in the New Valley well.	2155.

....

EXHIBIT "93"	
Map prepared by Dr. Hulme, and submitted by the witness Joseph J. Irwin, showing the location of the New Valley structure	2166.

....

EXHIBIT "94".	
Map produced by the witness Samuel Coultis showing storage tanks at the Turner Valley end of the pipe lines of the Royalite Company.	2347.

....

Exhibit 95.

THE PETROLEUM AND NATURAL GAS CONSERVATION BOARD

TURNER VALLEY PRODUCTION AND PIPE LINE DELIVERIES - YEAR 1938.

	January Barrels	February Barrels	March Barrels	April Barrels	May Barrels	June Barrels	July Barrels	August Barrels	September Barrels	October Barrels	November Barrels	December Barrels	Total Year 1938 Barrels	Daily Average Barrels
Production														
OIL WELLS -														
Crude Oil	369,589	334,938	398,930	386,989	480,944	464,308	616,247	740,133	808,231	620,132	383,202	421,405	6,025,048	16,507
GAS WELLS -														
Crude Oil	6,419	4,799	4,745	4,130	3,829	3,007	3,106	3,187	2,721	2,353	2,505	2,400	43,201	118
Separator Naphtha	9,768	9,102	8,896	7,428	7,105	6,175	5,941	5,855	5,127	3,585	3,654	3,500	76,152	209
Absorption Plant Naphtha	54,329	48,324	50.687	44,205	49,041	43,194	46,005	44,202	45,382	36,221	30,994	39,000	531,584	1,456
TOTAL - BARRELS	440,105	397,163	463,258	442,752	540,919	516,684	671,299	793,375	861,461	662,289	420,355	466,305	6,675,965	18,290
Pipe Line Deliveries To Calgary Refinery.														
Crude Oil	332,721	327,462	364,239	375,946	429,760	426,214	556,573	660,328	742,481	598,540	356,880	394,483	5,565,627	15,248
Absorption and Separator Naphtha	48,850	47,336	47,636	34,205	36,080	34,633	36,574	32,079	27,093	29,149	21,599	26,481	421,715	1,155
TOTAL - BARRELS	381,571	374,798	411,875	410,151	465,840	460,847	593,147	692,407	769,574	627,689	378,479	420,964	5,987,342	16,403

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The Province of Alberta

IN THE MATTER OF THE PUBLIC INQUIRIES ACT

—and—

IN THE MATTER OF a Commission, dated the 12th day of October, A.D. 1938, to inquire into matters connected with Petroleum and Petroleum Products

Commissioners:

The Honourable MR. JUSTICE McGILLIVRAY
(Chairman)

—and—

L. R. LIPSETT, ESQ.

Session:

CALGARY, Alberta EXHIBITS

VOLUME 7

Appraisal Reports prepared in December and
May, 1938, for the Royalite Company by the
witness, Edgar G. Hill.
Exhibits 96 and 97 respectively.

BOX 84

EDMONTON

EXHIBIT 96.

REPORT

ROYALITE OIL COMPANY, LIMITED
CALGARY, ALBERTA, CANADA

PIPE LINE DIVISION
AS OF DECEMBER 31, 1938

DECEMBER 31, 1938

FORD, BACON & DAVIS

Incorporated

ENGINEERS

Philadelphia New York Chicago

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LETTER OF TRANSMITTAL

Established 1894

FORD, BACON & DAVIS
Incorporated

ENGINEERS

New York
Philadelphia

CONSTRUCTION VALUATIONS REPORTS MANAGEMENT

Chicago
Dallas

39 Broadway
New York

New York, December 31, 1938

Royalite Oil Company, Limited,
Calgary, Alberta, Canada.

Dear Sirs:

Pursuant to instructions, we have made a study of the property and business of the Pipe Line Division of your Company, including a valuation of its physical properties and business, and a calculation of its probable near future earnings under the tariff which it now charges for the transportation of naphtha and crude oil from the Turner Valley field to Calgary.

It is our opinion that the property and business of the Pipe Line Division is conservatively worth at least $1,700,000 at the date of this report.

We are also of the opinion that the current tariff of 15 cents per barrel is reasonable, considering the risks and uncertainties inherent in the business of the Division.

The details and reasoning on which these conclusions are based will be found in the attached report.

Very truly yours,

(Signed) FORD, BACON & DAVIS, Inc

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REPORT

REPORT

ROYALITE OIL COMPANY, LIMITED
CALGARY, ALBERTA, CANADA

PIPE LINE DIVISION
AS OF DECEMBER 31, 1938

DECEMBER 31, 1938

Nature and Location of Operations

This Division operates a gathering and transportation system for crude naphtha, absorption naphtha and crude oil in the Turner Valley field, Alberta, Canada. It gathers crude naphtha and crude oil from producers' tanks at the wells. Absorption naphtha is received at two absorption plants of Royalite Oil Company, Limited and at one absorption plant of British-American Oil Company, Limited.

Delivery of crude oil is made into rented tanks at the Imperial refinery at Calgary, located about 35 miles from the center of the oil field. Naphthas are delivered direct to the refinery.

DESCRIPTION OF PROPERTY

Gathering System

The gathering system of the Division comprises 72 miles of 4 in., 3 in. and 2 in. pipe, of which 0.4 miles are at present inactive. It also includes 73 pumps located at the wells and absorption plants and two field pumping stations which deliver the

oil to the trunk line storage tanks at Turner Valley. The system is shown in detail on the map appended to this report.

Storage Tanks

A tank farm at Turner Valley, owned and operated by the Division, contains crude oil and naphtha storage tanks of a total capacity of 118,380 barrels. In addition, two tanks of 10,000 barrels capacity each are located at the field pumping stations.

Main Pumping Station

At Turner Valley the Division owns and operates a pumping station which draws the naphtha and crude oil from storage and delivers it into the trunk pipe lines which extend from the field to Calgary. This station is new. It contains three multiple cylinder 200-horsepower (see level rating) gas engines, each driving a 5-1/2 x 18 vertical triplex single acting power pump capable of operation against a pressure of 1,000 pounds per square inch. Normally two units are assigned to crude oil service. One unit operates on either crude or naphtha, as required.

Trunk Pipe Lines

These are three in number; a 4-inch welded line (No.1), built in 1925 but completely reconditioned during the last four years; a 4-inch welded line (No. 2), part of which was built in 1929 as a victaulic coupled line but was completely rebuilt as a welded line in 1937 and about 7 miles of new line added, and a 6-inch welded line built in 1937 and 1938. These lines are all protected with an asphalt coating, lines Nos. 2 and 3 being

wrapped and a second coat of hot asphalt applied over the wrapper. Line No. 1 is similarly protected in many places. The lengths of these lines are as follows:

Line No. 1	154,603 feet	(29.3 miles)
Line No. 2	165,499 feet	(31.3 miles)
Line No. 3	166,604 feet	(31.6 miles)

Lines Nos. 2 and 3 follow approximately the same right-of-way. Line No. 1 is laid on a right-of-way owned jointly with the natural gas company serving Calgary. The location of the lines is shown on the appended map.

Capacity of Trunk Pipe Lines

The three pipe lines have an aggregate daily rated capacity of 24,000 barrels, with a maximum capacity of 28,000 barrels. Lines Nos. 2 and 3 are normally operated on crude oil at 1,000 pounds station pressure. Line No. 1 normally operates at 750 pounds station pressure.

Other Property

In addition to its field gathering lines, field pumping stations, storage tanks, main pumping station and trunk pipe lines, the Division owns four employe's dwelling houses in the field, a field office, a field warehouse and shop, a foam house at the tank farm, several automobiles and trucks, several items of pipe line construction equipment, furniture and fixtures in its field office and in the offices it rents in Calgary, and certain miscellaneous structures and equipment items, all of which are set forth in detail herein.

Age of Properties

The property for a great part is new, or substantially so. With the exception of part of the gathering system, the pipe lines of the Division either have been built new or wholly reconditioned within the last five years. Its pumping stations are new in 1938. Some of the equipment at the new field stations has been used previously in the former main station and elsewhere.

The tankage is not new but several of the larger tanks have been rebuilt recently and are apparently in a condition substantially equal to new.

Condition of Properties

The pipe lines and pumping stations were carefully inspected by the Engineers in May and December 1938 for the purpose of determining the physical depreciation which had accrued in them. The gathering system pipe was exposed at 48 separate locations and carefully cleaned and inspected. Several nipples were cut from the lines to reveal what internal corrosion, if any, had occurred. These inspections disclosed a high state of maintenance with very little external corrosion and no internal corrosion.

Fifteen similar inspections were made on the trunk lines, most of them being made on the two older lines. Line No. 1 was found to be in remarkably good condition and lines Nos. 2 and 3 were in a condition practically equal to new. It was evident that the soil in which these lines are laid is not particularly corrosive to steel pipe well protected by an asphalt coating, particularly where a wrapper is used. These inspections were made in May 1938.

The pumping stations, all of which had been built in 1938, were likewise in a condition practically equal to new.

Most of the structures, except the four dwelling houses and the field office, were built in 1938. The dwellings and office were well maintained.

The principal items of automotive and construction equipment were likewise either of 1938 or 1937 model and in very good condition..Furniture and fixtures in the offices were bought new in 1938.

There may be more depreciation present in the storage tanks than can be disclosed by outside inspection. The tanks are well kept up and from the outside appear almost equal to new. It was not practicable to make an internal examination or to drill holes in the tank plates. For that reason, and for the further reason that most of the tankage was not new when installed at present location, physical depreciation of 20 per cent was assumed to exist in the crude storage tanks and 30 per cent in the naphtha storage tanks.

INVENTORY METHODS

The inventory of pipe, fittings and valves was taken by employes of the Company from actual measurement and count in the field. The Engineers in their inspection of the property were able to check this inventory to a considerable extent. They did not, however, actually measure any of the pipe lines on the ground.

The inventory of pipe lines was taken for each section of land separately, making it a simple matter to check the inventory by scaling the line lengths on the maps on which they are recorded. The Engineers spot-checked the pipe line inventory in this way.

The inventory of machinery, buildings, tanks and other items of property was made by Company employes, but all such items, with insignificant exceptions, were inspected and checked for existence and condition by the Engineers.

Valuation of Property

A valuation of the property of the Pipe Line Division as it existed on December 31, 1938 was made by the Engineers, using material and labor prices current in the territory as of that date. Prices used for pipe were those applicable to carload lots. Prices for principal items of equipment were taken from Company vouchers, as most of these items had been purchased recently. Quotations on tanks were obtained from a local representative of one of the principal manufacturers.

Land

The land included in this valuation comprises five lots in the Royalite townsite at Turner Valley on which four employes' dwellings and the field office are located, the land at Turner Valley occupied by the storage yard and shop, together with that occupied by the pumping stations, as well as the tank farm land at Turner Valley. A valuation of $2,437 was placed on this land (which comprises 36.04 acres) as follows:

5 Lots (2.14 acres)	at $250 per lot	$1,250
33.9 Acres	at $ 35	1,187
	Total	$2,437

Rights-of-Way

The trunk pipe lines are in part located on private rights-of-way and in part on public road allowances. The actual cost to the Company of its one-half interest in the private rights-of-way occupied by trunk pipe line No. 1 was $5,124. The Company has no record of the costs of the rights-of-way on trunk pipe line

No. 2 as most of this line was purchased in place as a unit. Rights-of-way costs on line No. 3 are not yet complete.

Some of the gathering system pipe lines occupy rights-of-way jointly with the natural gas and water pipe lines of the Producing Division of the Company and no allocation has ever been made of their cost as between the Producing and Pipe Line Divisions. Some of the gathering system lines are likewise located partly on public road allowances.

After consideration of the location and length of the lines a valuation of $16,196 was placed on all of the private rights-of-way applicable to the pipe lines covered by this valuation, which is believed to be a reasonable figure, having in mind present-day costs of rights-of-way in this area.

Structures

The four employes' dwellings were valued on the basis of actual cost of a similar dwelling recently built in the townsite. The actual costs, either complete or partial, were available for the other structures and formed a basis for the valuation.

Pumping Stations

The trunk line pumping station No. 1 at Turner Valley and Stations Nos. 2 and 3 in the field were recently completed. Cost records were available and were used as a basis for the valuation of these stations.

Pipe Lines

The Company furnished the Engineers with actual costs and recent cost estimates on several of the lines recently laid,

These together with the cost experience of the Engineers in the construction of similar property, formed the basis of the estimates herein.

Trunk pipe line No. 3 was constructed largely during the winter months. The Engineers in making their valuation assumed that the pipe lines would not normally be constructed during the winter when installation costs are high, and for this reason the actual book cost of trunk pipe line No. 3 will be found to exceed the estimated cost used in the valuation for this particular line.

About 4 miles of the gathering system were not fully completed at the date of the valuation, but were so near completion that they have been included in the valuation at their estimated cost when completed.

Summary of Valuation

The valuation of the physical property of the division as of December 31, 1938 is summarized as follows:

Pipe Line Division

Summary Classified by Accounts

Classification	Estimated Cost of Reproduction As of Dec. 31, 1938	
	New	Less Depreciation
Land	$ 2,437	$ 2,437
Rights of Way	16,196	16,196
Field Gathering Lines	320,476	305,516
Field Gathering Pumps	60,264	47,907
Water Pumps	2,650	1,590
Tanks	147,100	117,980
Pumping Stations	156,823	149,945
Trunk Pipe Lines	579,016	564,145
Oil and Fire Lines	49,735	47,248
Miscellaneous Equipment	17,948	12,834
Miscellaneous Structures	29,647	24,427
Automotive Equipment	13,341	9,970
Furniture and Fixtures	3,663	3,663
Total	$1,399,296	$1,303,858
General Overhead Costs (10%)	139,930	130,386
Total	$1,539,226	$1,434,244
Working Capital and Materials and Supplies	80,000	80,000
	$1,619,226	$1,514,244

Note: Above totals include full cost of items of property and construction in process of construction and installation as of December 15, 1938. Such incomplete construction will normally be finished by December 31, 1938.

General Overhead Costs

These are the undistributed general overhead costs unavoidable in the construction of a property of this type which have not been provided for elsewhere in the valuation. They include costs of preliminary investigation of the project, the costs of administration, legal expenses and taxes during construction, costs of engineering design and supervision of the project during construction, interest during construction, and costs of injuries and damages claims incurred during construction which were not covered by insurance. In total these have been estimated at 10 per cent of the costs of the physical property, based on a construction period of one year.

Working Capital

The total expenses of the Division for operation and maintenance for the 12-months period ending June 30, 1939 are estimated to approximate $311,500. One-eighth of this amount, or $38,900, is believed to be a reasonable cash working capital for the Division.

The Division does not carry much stock of materials and supplies other than repair parts for machinery, pipe fittings, small tools, etc. It is free to call upon the main warehouse of the Company for any of its requirements, consequently the amount of materials and supplies shown on the Division's books is not a fair criterion of its reasonable needs.

In the experience of the Engineers the Division, if it were entirely divorced from the parent Company, would normally

carry an inventory of spare parts, pipe, valves, fittings and small tools of $40,000 to $50,000. The total normal working capital requirements of the Division would, therefore, range between $78,900 and $88,900. A total of $80,000 for working capital has been used by the Engineers as representing a reasonable average allowance.

Value as a Going Concern

The Pipe Line Division of the Royalite Oil Company, Ltd. is a going concern which has been in successful operation for more than ten years, although it has been considered as a separate Division of the Company only since January 1, 1938. It is the principal gatherer and transporter of crude oil and naphtha in the Turner Valley field. Its property is well maintained and efficiently operated by experienced men all of whom have had many years of service with the Company.

In the opinion of the Engineers the small amount of physical depreciation found to exist in the property does not measurably detract from its service value.

The Division receives the benefit of the utility services such as electric power and light, water, steam, sanitation and repair shop facilities provided by the parent Company at Turner Valley. While a proportion of the operating expenses of these utilities has been allocated to the Division, the Engineers have not attempted to allocate to the Division any of the parent Company's investment in these facilities. If they did not exist the Division would have to provide them and their cost necessarily

would be included in any valuation of the Division. The investment of the parent Company in these utilities is substantial, approximating $1,000,000.

For all of these reasons the Division has, in the Engineers' opinion, a value as a going concern which is in excess of the depreciated value of its physical assets plus working capital. This value as a going concern, necessarily a matter of judgment, is fixed by the Engineers at a minimum of $1,700,000 at December 31, 1938.

TARIFF, VOLUME, GROSS INCOME, OPERATING EXPENSES, AMORTIZATION OF CAPITAL AND PROBABLE NEAR FUTURE EARNINGS

The Company's present tariff for the gathering of crude oil, crude naphtha and absorption naphtha from the run tanks at the wells and from the absorption plants in the Turner Valley field and transporting it to and storing it in the receiving tanks at the Imperial refinery in Calgary, is 15 cents per barrel of 35 Imperial gallons. (Naphthas are not stored but are delivered direct to the refinery). At an average daily rate of 15,000 barrels the annual volume handled will approximate 5,500,000 barrels, which is believed to be a reasonable estimate for the next two or three years, assuming that no substantial new discoveries of crude oil are made in the Prairie Provinces. At this tariff and volume the resulting annual gross income of the Division will be $825,000. In addition the Division makes a deduction of one per cent of the crude oil handled and two per cent of the naphthas handled, which deduction is calculated to compensate the Division for gathering, storage and transportation losses.

In the first nine months of 1938 the actual losses of this nature amounted to 0.52 per cent of the crude oil handled. If this ratio continues the indicated net profit to the Division from this one per cent deduction will be $33,000 per year, based on crude at $1.25 per barrel. The volumes of naphtha transported are so small that any profit or loss resulting from the two per cent charge is considered negligible. In the year 1937 the crude deduction was two per cent and the actual crude losses were 1.8 per cent, so that if the results for the years 1937 and 1938 are

averaged, there would be no profit to the Division arising from the one per cent deduction. On the other hand, the volumes transported in 1937 were much less than in 1938 and as loss ratios of this nature tend to decrease as the volumes handles increase, it is probable that the profit to the Division from this source will continue at about the 1938 rate, barring serious line breaks or fires. The annual gross income of the Division is therefore estimated to be at the rate of $858,000 per year for the near future.

Operating Expenses

The operating expenses, including ordinary property taxes for the Division for the first nine months of 1938 were stated to the Engineers by the Company's auditors, Messrs. Price, Waterhouse & Company, to be $214,488.69. This sum includes rental charges for the three large receiving tanks at the Imperial refinery for only about 4-1/2 months of the nine months and likewise includes the operating expenses of the two new field pumping stations for only about 2-1/2 months, as these stations were not completed until the summer of 1938.

Ignoring these facts and adding one-third of the nine months' expenses results in a figure applicable to the entire year 1938 of $285,984.92. However, the Company's direct operating expenses for the month of November, 1938, as disclosed to the Engineers by the Company's Treasurer, amounted to $23,151.35 exclusive of the Division's proportion of indirect expenses and property taxes. On the basis of the November experience the Division's direct expenses would be running at the rate of about $277,800 per

year, exclusive of depreciation, taxes, or any indirect expenses.

The Company's auditors fixed the Division's proportion of administration charges for the first nine months of 1938 at $13,871.58, arrived at by allocation on an operating labor basis, which is at the rate of $18,495.44 per year. The auditors also allocated certain portions of indirect operating costs of the entire Company, including utility service, depreciation on automobiles, trucks and tractors, and general corporate costs, to the Division in the amount of $59,109.25 for the first nine months, or at the rate of $78,812.33 per year. The sum of these three annual amounts is a total of $375,107.77. This figure doubtless contains some duplications of utility expense and is probably further distorted by reason of the apparently abnormal maintenance expense in the month of November.

After considering all these factors the Division's operating expenses for the 12 months ended June 30, 1939 have been estimated by the Engineers as follows:

Operating Expenses for the first nine Months of 1938 as per Price Waterhouse & Co.	$214,488.69
Deduct: Tank Rentals included in above	14,583.30
Balance	$199,905.39
Add one-third to cover October, November and December, 1938	66,635.13
Add: 12 months' Tank Rentals	35,000.00
Add: Allowance to cover full year's operating costs of new pump stations	10,000
Total	$311,540.52
Say - for 12 mo. ending June 30, 1939	$311,500

Probable Cost of Building and Operating Extensions to Gathering System

As the Turner Valley field increases in area the Division will be required to lay gathering lines to the new wells and install pumping facilities at such wells. At present 12 wells are being drilled in the field.

There is no basis for any exact forecast as to the amount of money which the Division will have to spend each year in the future for extending its system. The best that can be done is to make as rational an estimate as possible. It must be borne in mind also that, unless the total demand on the Turner Valley field's production increases, the bringing in of additional productive wells will result in less oil being taken from each well. The labor costs to the Division of gathering oil are largely proportional to the number of wells, so as the number of wells increases operating costs will also increase, even though the volume of oil handled remains the same.

In the opinion of the Engineers the sum of $125,000 per year is a reasonable estimate, on the average, of the additional costs both for construction and operation which the Company can be expected to have to incur in the future to provide connections to additional wells and meet the additional operating costs of handling them. Strict accounting practice would dictate that such part of this annual cost of $125,000 as is incurred for construction be capitalized and added to the value of the property, and the remainder, representing estimated additional annual operating expenses, be charged to expense. The additional capital expenditure would, of course, be subject to amortization and the Division

would be entitled to the same rate of return on it as on its present property. For convenience, however, the Engineers have treated this entire $125,000 estimated additional outlay as an expense item, recoverable in the year when incurred.

Amortization

Before net earnings of a property of this kind can be estimated there must first be deducted from gross earnings a reasonable provision for return of the capital represented by the value of the property. The Engineers have estimated the value of this property and business as a going concern at not less that $1,700,000. It is the judgment of the Engineers that during each of the next ten years a sum should be set aside out of income so that these sums together with interest thereon at the rate of 3.5 per cent per annum compounded annually will, at the end of ten years, equal such minimum value of the property, excluding working capital, less salvage estimated at 5 per cent, thus resulting in a complete amortization or extinguishment of the value of the property and business as now determined on December 31, 1948. The annual charge against income so computed is $131,186.

The Engineers express no opinion as to the probable life of the Turner Valley oil field. This field has been a substantial producer of crude oil only for the last two years. Its development is probably only partially completed and it may become a field of major importance. The life of this field depends on many factors unknown and unpredictable at this time, such as its extent and productivity, the annual demand upon it, methods of production and the cost of recovering the oil as compared with

costs of other crudes which may become competitive.

Probable Near Future Earnings and Return

With probable annual gross revenue of $858,000, near future operating expenses and property taxes estimated at $311,500, probable increased annual costs of $125,000 and provision for amortization of capital amounting to $131,186 annually, there will remain before Dominion and Provincial income taxes the sum of $290,314 on which Dominion income taxes of 15 per cent and Provincial taxes of 7 per cent are considered applicable, resulting in a combined income tax of $63,869. When these income taxes are subtracted there remains $226,445 representing the estimated annual net earnings of the business available to the owners thereof, which is equivalent to 13.3 per cent of $1,700,000, which is, in the opinion of the Engineers, a fair minimum value of the property and business of the Division at December 31, 1938. This is expressed in statement form as follows:

Annual Gross Revenue	$858,000
Operating Expenses and Property Taxes	311,500
Balance	$546,500
Provision for Increased Annual Costs of Construction and Operation	125,000
Balance	$421,500
Provision for Amortization of Capital	131,186
Balance	$290,314
Provision for Dominion and Provincial Income Taxes	63,869
Balance - Net Income	$226,445

equivalent to a return of 13.3 per cent.

Return Must Be Commensurate With Risk

On the face of the figures so far discussed this estimated return of 13.3 per cent on the minimum value of the property and business at Decmeber 31, 1938 might appear somewhat excessive when compared with the lower rates of return allowed by regulatory bodies on public utility properties serving electricity and gas. In the opinion of the Engineers, however, this return is fully warranted and justified by the risks inherent in the oil business.

In the United States, tariff rates on pipe line systems serving isolated fields are commonly calculated to return the investment in about three years. In the particular case under discussion it must be realized that there is no guarantee that the Division will handle 5,500,000 barrels of crude oil and naphtha annually, even though this volume of business seems indicated for the near future.

The Prairie Provinces of Canada are able to consume the products of approximately 17,000 barrels of crude oil daily, of which all but negligible amounts were imported, principally from the United States, prior to the discovery of oil in Turner Valley in 1936. The advent of Turner Valley crude caused crude imports from the United States to practically cease within two years. By the same token, if oil is discovered in Alberta in any of the several tests which are now under way, the available market in the Prairie Provinces will have to be divided between Turner Valley and the production from such new discoveries.

It is not now economically feasible to transport Alberta crude to the Pacific Coast or to the Great Lakes, nor is there any need for Alberta crude in the Inited States where a condition of over-production of crude currently exists. It follows, therefore, that any large discoveries of crude oil in any of the Prairie Provinces will have an adverse effect on the earnings of the Division for the reason that its costs are largely fixed in dollars and are thus to a great extent independent of the amount of oil handled.

To cite a concrete case of a parallel nature, the Engineers in 1934 constructed a pipe line and crude oil pumping station for a client in the state of Montana, which facilities were used in transporting Montana crude oil into southern Alberta. In addition to the work done by the Engineers, the client himself constructed a gathering system of substantial size together with at least one oil storage tank of 80,000 barrels capacity. Within three years after these facilities were put into operation crude oil was discovered in Turner Valley and importation of Montana crude into Alberta stopped. These facilities are today idle.

During the year 1929 the Royalite Oil Company laid 15 miles of 6-inch trunk pipe line between Turner Valley and Calgary in a loop with, and paralleling, its then single 4-inch trunk line. This loop line was intended to provide for the transportation of the larger volumes of naphtha which the Company believed were to be produced in Turner Valley. The large volumes did not materialize and the loop line was never used for the purpose for which it was built, but was taken up in 1932 and the pipe used

for other purposes, resulting in a loss to the Company represented by the costs of installing and reclaiming this 15 miles of 6-inch pipe.

While it is not intended to imply that risks of similar magnitude apply to the construction and operation of major transcontinental trunk lines, such as the systems extending from Oklahoma and Texas to the Atlantic Seaboard of the United States, it must be pointed out that recent discoveries of extensive crude oil reserves in the State of Illinois have seriously interfered with the traffic and earnings of several of these lines. The production from these new Illinois fields, discovered within the last two years, is located so much closer to many large refineries in the eastern states than the mid-continent crude formerly used, that not only is this crude, to the extent of nearly 100,000 barrels a day, replacing mid-continent crude which was formerly transported east by trunk pipe lines, but the trunk pipe lines have had to reduce their tariff from the mid-continent fields to the eastern refineries on such oil as they still transport from the mid-continent.

All of these experiences clearly indicate the necessity of a greater margin of possible profit in the gathering and transportation of crude oil than would be considered proper today in the public utility business as that term is generally understood.

Pipe Line Earnings in the United States as Reported to the Interstate Commerce Commission for the years 1936 and 1937

In the United States pipe line companies are subject to the jurisdiction of the Interstate Commerce Commission if they are common carriers engaged in interstate transportation of oil by pipe line.

In 1936 there were 52 companies which reported to the Commission. The Commission's Bureau of Statistics has published Statement No. 3734 entitled "Selected Financial and Operating Statistics from Annual Reports of Pipe Line Companies, Year ended December 31, 1936".

While most of the pipe line companies reporting are larger than the operation under discussion here, there are three companies, the Arkansas Pipe Line Corporation, the International Pipe Line Company and the Toronto Pipe Line Company which are somewhat comparable in size and scope of operations..The Arkansas Pipe Line Corporation operates in Texas and Louisiana, International Pipe Line Company in Montana, and Toronto Pipe Line Company in Texas and Montana. These companies reported for the year 1936 as follows:

Name	Investment in Carrier Property	Operating Revenue	Operating Expenses	Pipe Line Operating Income
Arkansas Pipe Line Corp.	$1,205,273	$ 887,161	$ 250,855	$ 501,205
International Pipe Line Co.	462,929	354,196	137,548	167,029
Toronto Pipe Line Co.	724,636	545,695	234,447	246,958

The percentage of "Investment in Carrier Property" represented by "Pipe Line Operating Income" of the three Companies for 1936 is, by computation, as follows:

Arkansas Pipe Line Corp.	41.6%
International Pipe Line Co.	36.1
Toronto Pipe Line Co.	34.1

To the Engineers' knowledge these companies are all engaged in operations not dissimilar to that of the Division. The ratio of pipe line operating income to investment as shown by these companies for the year 1936 is, therefore, fairly comparable with that which will be shown by the Royalite's Pipe Line Division when operating at its present indicated annual rate at the present tariff of 15 cents per barrel.

For the year 1937 these companies reported as follows:

Name	Investment in Carrier Property	Operating Revenue	Operating Expenses	Pipe Line Operating Income
Arkansas Pipe Line Corporation	$1,246,890	$882,085	$238,187	$ 454,780
International Pipe Line Company	485,856	302,534	151,070	124,994
Toronto Pipe Line Company	690,325	363,805	187,189	135,083

Percentage of "Investment in Carrier Property" represented by "Pipe Line Operating Income" for calendar year 1937 - by computation are:

Arkansas Pipe Line Corporation	36.5%
International Pipe Line Company	25.7
Toronto Pipe Line Company (A)	19.6

Note: (A) This Company's operations in Montana were adversely affected by the discovery of the Turner Valley oil field in Alberta.

Comparable Gathering and Short-haul Transportation Tariffs in the United States

Published tariffs for the gathering and short-haul transportation of crude oil in the United States under conditions fairly comparable with the Division's operations, show for the most part a gathering charge of 5 cents per barrel and a transportation charge of 10 cents per barrel, a total of 15 cents. In one or two cases the charges depart from these figures, the gathering charge in some cases being as high as 7.5 cents per barrel, but as an average the tariffs under comparable conditions of haul will be almost exactly 15 cents per barrel, which the Division charges for the combined services of gathering, transportation and storage.

SUMMARY CLASSIFIED BY ACCOUNTS

PIPE LINE DIVISION

Summary Classified by Accounts

Classification	Estimated Cost of Reproduction As of Dec. 31, 1938	
	New	Less Depreciation
Land	$ 2,437	$ 2,437
Rights of Way	16,196	16,196
Field Gathering Lines	320,476	305,515
Field Gathering Pumps	60,264	47,907
Water Pumps	2,650	1,590
Tanks	147,100	117,980
Pumping Stations	156,823	149,945
Trunk Pipe Lines	579,016	564,145
Oil and Fire Lines	49,735	47,248
Miscellaneous Equipment	17,948	12,834
Miscellaneous Structures	29,647	24,427
Automotive Equipment	13,341	9,970
Furniture and Fixtures	3,663	3,663
Total	$1,399,296	$1,303,858
General Overhead Costs (10%)	139,930	130,386
Total	$1,539,226	$1,434,244
Working Capital and Materials and Supplies	80,000	80,000
Total	$1,619,226	$1,514,244

Note: Above totals include full cost of items of property construction in process of construction and installation as of December 15, 1938. Such incomplete construction will normally be finished by December 31, 1938

PRICED INVENTORY

(And here follows pages 31 to 60 which show the breaking down of the Summary Classified by Accounts as shown on page 29. These are not extended.)

Mr. Hill's December Report

Exhibit 97

EXHIBIT "97"

REPORT

ROYALITE OIL COMPANY, LIMITED
CALGARY, ALBERTA, CANADA

PIPE LINE DIVISION
AS OF MAY, 1938

MAY 25, 1938

Ford, Bacon & Davis
Incorporated
Engin~~ee~~rs

Philadelphia New York Chicago

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LETTER OF TRANSMITTAL

(COPY)

Ford, Bacon & Davis
Incorporated

Engineers

39 BROADWAY
NEW YORK

New York, May 25, 1938

Royalite Oil Company, Limited,
Calgary, Alberta, Canada.

Dear Sirs:-

Pursuant to instructions, we have made a study of the property and business of the Pipe Line Division of your Company, including a valuation of its physical properties and business, and a calculation of its probable near future earnings under the tariff which is now charged for the transportation of naphtha and crude oil from the Turner Valley field to Calgary.

It is our opinion that the property and business of the Pipe Line Division is conservatively worth at least $1,450,000, which is approximately the reproduction cost new of its physical facilities at the present time.

We are also of the opinion that the current tariff of 15 cents per barrel is reasonable, considering the risks and uncertainties inherent in the business of the Division.

The details and reasoning on which these conclusions are based will be found in the attached report.

Very truly yours,

(Signed) FORD, BACON & DAVIS, Inc.

REPORT

REPORT

ROYALITE OIL COMPANY, LIMITED
CALGARY, ALBERTA, CANADA

PIPE LINE DIVISION
AS OF MAY 1938

MAY 25, 1938

Nature and Location of Operations

This Division operates a gathering and transportation system for crude naphtha, absorption naphtha and crude oil in the Turner Valley field, Alberta, Canada. It gathers crude naphtha and crude oil from producers' tanks at the wells. Absorption naphtha is received at two absorption plants of Royalite Oil Company, Limited and at one absorption plant of British-American Oil Company, Limited.

Delivery of all commodities is made into rented tanks at the Imperial refinery at Calgary, located about 35 miles from the center of the oil field.

DESCRIPTION OF PROPERTY

Gathering System

The gathering system of the Division comprises 63.2 miles of 4 in., 3 in. and 2 in. pipe, of which 2.6 miles are at present inactive. It also includes 63 pumps located at the wells and absorption plants and two field pumping stations which deliver the

oil to the trunk line storage tanks at Turner Valley. The system is shown in detail on the map appended to this report.

Storage Tanks

A tank farm at Turner Valley, owned and operated by the Division, contains crude oil and naphtha storage tanks of a total capacity of 118,380 barrels. In addition, two tanks of 10,000 barrels capacity each are located at the field pumping stations.

Main Pumping Station

At Turner Valley the Division owns and operates a pumping station which draws the naphtha and crude oil from storage and delivers it into the trunk pipe lines which extend from the field to Calgary. This station is new. It contains three multiple cylinder 200-Horsepower (sea level rating) gas engines, each driving a 5-1/2 x 18 vertical triplex single acting power pump capable of operation against a pressure of 1,000 pounds per square inch. Normally two units are assigned to crude oil service. One unit operates on naphtha, but not continuously.

Trunk Pipe Lines

These are three in number; a 4-inch welded line (No. 1), built in 1925 but completely reconditioned during the last four years; a 4-inch welded line (No. 2), built in 1929 as a victaulic coupled line but completely rebuilt as a welded line subsequently; and a 6-inch welded line built in 1937 and 1938. These lines are all protected with an asphalt coating, lines Nos. 2 and 3 being

wrapped and a second coat of hot asphalt applied over the wrapper. Line No. 1 is similarly protected in many places. The lengths of these lines are as follows:

Line No. 1	154,000 feet	(29.2 miles)
Line No. 2	164,713 feet	(31.2 miles)
Line No. 3	165,829 feet	(31.4 miles)

Lines Nos. 2 and 3 follow approximately the same right-of-way. Line No. 1 is laid on a right-of-way owned jointly with the natural gas company serving Calgary. The location of the lines is shown on the appended map.

Capacity of Trunk Pipe Lines

The three pipe lines have an aggregate daily capacity of about 24,000 barrels. Lines Nos. 2 and 3 are normally operated on crude oil at 1,000 pounds station pressure. Line No. 1 normally handles npahtha at 750 pounds station pressure.

Other Property

In addition to its field gathering lines, field pumping stations, storage tanks, main pumping station and trunk pipe lines, the Division owns two employe's dwelling houses in the field, a field office, a field warehouse and shop, a foam house at the tank farm, several automobiles and trucks, several items of pipe line construction equipment, and furniture and fixtures in its field office and in the offices it rents in Calgary.

Age of Properties

The property for a great part is new, or substantially so, with the exception of part of the gathering system, the pipe lines of the Division either have been built new or wholly reconditioned within the last four years. Its pumping stations are new in 1938 with the exception of the steam-driven equipment and boilers at Sterling Station, which were second-hand when installed, and some of the equipment at the new field stations which had been used for several years in the former main station.

The tankage is not new but several of the larger tanks have been rebuilt recently and are apparently in a condition substantially equal to new.

Condition of Properties

The pipe lines and pumping stations were carefully inspected by the Engineers for the purpose of determining the physical depreciation which had accrued in them. The gathering system pipe was exposed at 48 separate locations and carefully cleaned and inspected. Several nipples were cut from the lines to reveal what internal corrosion, if any, had occurred. These inspections disclosed a high state of maintenance with very little external corrosion and no internal corrosion.

Fifteen similar inspections were made on the trunk lines, most of them being made on the two older lines. Line No. 1 was found to be in remarkably good condition and lines Nos. 2 and 3 were in a condition practically equal to new. It was evident that the soil in which these lines are laid is not particularly corro-

sive to steel pipe well protected by an asphalt coating, particularly where a wrapper is used.

The pumping stations, all of which (excepting the steam-driven portion of Sterling station) had been built in 1938 or were in the process of construction, were likewise in a condition practically equal to new. The steam-driven portion of Sterling station, while not new, was well and adequately maintained.

Most of the structures, except the two dwelling houses and the field office, were built in 1938. The dwellings and office were well maintained.

The principal items of automotive and construction equipment were likewise either of 1938 or 1937 model and in very good condition. Furniture and fixtures in the offices were bought new in 1938.

There is probably more depreciation present in the storage tanks than can be disclosed by outside inspection. The tanks are well kept up and from the outside appear almost equal to new. It was not practicable to make an internal examination or to drill holes in the tank plates and for that reason physical depreciation of 20 per cent was assumed to exist in the tanks.

INVENTORY METHODS

The inventory of pipe fittings and valves was taken by employes of the Company from actual measurement and count in the field. The Engineers in their inspection of the property were able to check this inventory to a considerable extent. They did not,

however, actually measure any of the pipe lines.

The inventory of machinery, buildings, tanks and other items of property was made by Company employes, but all such items, with insignificant exceptions, were inspected and checked for existence and condition by the Engineers.

VALUATION OF PROPERTY

A valuation of the property of the Pipe Line Division as it existed in May, 1938 was made by the Engineers, using material and labor prices current in the territory as of that date. Prices used for pipe were those quoted in carload lots. Prices for principal items of equipment were taken from Company vouchers, as most of these items had been purchased recently. Quotations on tanks were obtained from a local representative of one of the principal manufacturers.

Land

The land included in this valuation comprises three lots in the Royalite townsite at Turner Valley on which two employe's dwellings are located, the land at Turner Valley occupied by the field office, foam house and shop, together with that occupied by pumping stations Nos. 1 and 2 at Turner Valley and the Sterling-Pacific lease respectively, as well as the tank farm land at Turner Valley. A nominal valuation of $1,500 was placed on all of this land.

Rights-of-Way

The trunk pipe lines are in part located on private rights-of-way and in part on public road allowances. The actual cost to the Company of its one-half interest in the private right-of-way occupied by trunk pipe line No. 1 was $5,124. The Company has no record of the costs of the right-of-way on trunk pipe line No. 2 as this line was purchased in place as a unit. Right-of-way costs on line No. 3 are not yet complete.

Many of the gathering system pipe lines occupy rights-of-way jointly with the natural gas and water pipe lines of the Producing Division of the Company and no allocation has ever been made of their cost as between the Producing and Pipe Line Divisions. Some of the gathering system lines are likewise located partly on public road allowances.

After consideration of the location and length of the lines a valuation of $20,000 was placed on all of the private rights-of-way applicable to the pipe lines covered by this valuation, which is believed to be a reasonable figure, having in mind present-day costs of rights-of-way in this area.

Structures

The two employes' dwellings were valued on the basis of actual cost of a similar dwelling recently built in the townsite. The actual costs, either complete or partial, were available for the other structures and formed a basis for the valuation.

Pumping Stations

The trunk line pumping station No. 1 at Turner Valley was just recently completed and incomplete cost records were available and were used as a basis for the valuation of this station.

Pumping station No. 2 at the Sterling-Pacific lease has been in operation for a year or more as a steam station. Two electrically-driven power pumps, together with a building and appurtenances, are now being installed in this station. The

steam portion was appraised by the Engineers on the ground and the Company's estimates of the cost of the new addition were used as a basis for the valuation of that part of the station.

Pumping station No. 3, the Longview station, is in process of construction. The Company's estimate of the cost of this station was accepted as its cost when completed and was so included in the valuation. Both this station and the addition to Station No. 2 should be completed and in operation during June 1938.

Pipe Lines.

The Company furnished the Engineers with actual costs and recent cost estimates on several of the lines recently laid. These together with the cost experience of the Engineers in the construction of similar property, formed the basis of the estimates herein.

Trunk pipe line No. 3 was constructed largely during the winter months. The Engineers in making their valuation assumed that the pipe lines would not normally be constructed during the winter when installation costs are high, and for this reason the actual book cost of trunk pipe line No. 3 undoubtedly will be found to exceed the estimated cost used in the valuation for this particular line.

Some of the gathering lines were not fully completed at the date of the valuation, but as they were so near completion they have been included in the valuation at their estimated cost when completed.

Summary of Valuation

The valuation of the physical property of the division as of May 14, 1938 is summarized as follows:

Pipe Line Division

Summary Classified by Accounts

	Estimated Cost of reproduction As of May 14, 1938	
Classification	New	Less Depreciation
Land	$ 1,500	$ 1,500
Rights of Way	20,000	20,000
Field Gathering Lines	269,573	256,276
Field Gathering Pumps	32,141	20,380
Tanks	147,100	117,980
Pumping Stations -		
No. 1	83,388	80,766
No. 2	48,695	40,855
No. 3	21,215	21,215
Trunk Pipe Lines	589,261	574,049
Oil and Fire Lines	16,993	14,873
Lines not in Use	6,763	1,352
Miscellaneous Equipment	16,946	13,066
Miscellaneous Structures	20,700	18,500
Automotive Equipment	10,125	7,600
Furniture and Fixtures	2,756	2,756
Total	$ 1,287,156	$1,191,168
General Overhead Costs	128,716	119,117
Total	$ 1,415,872	$1,310,285
Working Capital and Materials and Supplies	35,648	35,648
Total	$ 1,451,520	$1,345,933

Note: Above totals include full cost of items of property and construction in process of construction and installation as of May 14, 1938. In general, such incomplete construction will normally be finished by June 15, 1938.

General Overhead Costs.

These are the undistributed general overhead costs unavoidable in the construction of a property of this type which have not been provided for elsewhere in the valuation. They include costs of preliminary investigation of the project, the costs of administration, legal expenses and taxes during construction, costs of engineering design and supervision of the project during construction, interest during construction, and costs of injuries and damages claims incurred during construction which were not covered by insurance. In total these have been estimated at 10 per cent of the costs of the physical property.

Working Capital

The total annual expenses of the Division for operation and maintenance for the year 1938 are estimated to approximate $256,500. One-eighth of this amount or $32,000 has been used by the Engineers as their estimate of a reasonable cash working capital for the Division. To this has been added the sum of $3,648 representing the reported book value of the materials and supplies on hand at April 1, 1938.

Value as a Going Concern.

The Pipe Line Division of the Royalite Oil Company, Ltd. is a going concern which has been in successful operation for more than ten years, although it has been considered as a separate Division of the Company only since January 1, 1938. It is the principal gatherer and transporter of crude oil and naphtha in

the Turner Valley field. Its property is well maintained and efficiently operated by experienced men all of whom have had many years of service with the Company.

In the opinion of the Engineers the small amount of physical depreciation found to exist in the property does not measurably detract from its service value. For all of these reasons the Division has, in the Engineers' opinion, a value as a going concern which is in excess of the depreciated value of its physical assets. This value as a going concern, necessarily a matter of judgment, is fixed by the Engineers at a minimum of $1,450,000, which approximates the present-day reproduction cost new of its physical assets plus working capital.

TARIFF, VOLUME, GROSS INCOME, OPERATING EXPENSES, AMORTIZATION OF CAPITAL, AND ESTIMATED EARNINGS

Tariff, Volume and Gross Income

The Company's present tariff for the gathering of crude naphtha, absorption naphtha and crude oil from the wells and absorption plants in the Turner Valley field and transporting it to the receiving tanks at the Imperial refinery in Calgary is 15 cents per barrel of 35 Imperial gallons. At an average daily transportation rate of 15,000 barrels the annual volume handled, will approximate 5,500,000 barrels, which is believed to be a reasonable estimate for the near future, assuming that no substantial new discoveries of crude oil are made in the Prairie Provinces. At this tariff and volume the annual gross income of the Division will be $825,000.

Operating Expenses

The operating expenses for the Division for the first three months of 1938, including ordinary property taxes, were stated by Company officials to be $46,572.85. This amount does not include rental charges for the three large receiving tanks at the Imperial refinery which are owned by the refinery but used by the Division, nor does it include anything for the operation of the new pumping stations Nos. 2 and 3 which were not quite completed at the date of the valuation. Also, the expenses for the first quarter of the year do not reflect, except in a minor way, any reconditioning or repair expense on the pipe lines, most of which work is always done during the summer months. After

allowances for these additional costs are made, there results a total estimated operating expense, including normal maintenance, for the year 1938 of $221,491, to which must be added the sum of $35,000 which the Division reports that it will pay to the Imperial refinery as annual rental for the use of two 80,000-barrel and one 42,000-barrel steel storage tanks and their appurtenances at the Calgary end of the trunk lines. The total estimated annual operating expenses and ordinary taxes for the Division are, therefore, $256,491 for the year 1938.

Probable Cost of Building and Operating Extensions to Gathering System.

As the Turner Valley field increases in area the Division will be required to lay gathering lines to the new wells and install pumping facilities at such wells. There are at present upwards of 30 wells being drilled in the southern end of the field. If the field extends to the south, as now seems probable, the average distance over which the oil will have to be transported in the gathering process will increase.

There is no basis for any exact forecast as to the amount of money which the Division will have to spend each year in the future for extending its system. The best that can be done is to make as rational an estimate as possinle. It must be borne in mind also that, unless the total demand on the Turner Valley field's production increases, the bringing in of additional productive wells will result in less oil being taken from each well. The labor costs to the Division of gathering oil are largely proportional to the number of wells, so as the number of

wells increases operating costs will also increase, even though the volume of oil handled remains the same.

In the opinion of the Engineers the sum of $50,000 per year is a reasonable estimate of the additional costs both for construction and operation which the Company can be expected to have to incur in the future to provide connections to additional wells and meet the additional operating costs of handling them. Strict accounting practice would dictate that such part of this annual cost of $50,000 as is incurred for construction be capitalized and added to the value of the property, and the remainder, representing estimated additional annual operating expenses, be charged to expense. The additional capital expenditure would, of course, be subject to amortization and the Division would be entitled to the same rate of return on it as on its present property. For convenience, however, the Engineers have treated this entire $50,000 estimated additional outlay as an expense item, recoverable in the year when incurred.

Amortization

Before net earnings of a property of this kind can be estimated there must first be deducted from gross earnings a reasonable provision for return of the capital represented by the value of the property. The Engineers have estimated the value of this property and business as a going concern at not less than $1,450,000. It is the judgment of the Engineers that during each of the next ten years a sum should be set aside out of income so that these sums together with interest thereon at the rate of 4

per cent per annum compounded annually, will at the end of ten years equal such minimum value of the property, thus resulting in a complete amortization or extinguishment of the capital of the business. The annual charge against income so computed is $117,024.

Dominion and Provincial Income Taxes.

With gross revenue of $825,000, current operating expenses and property taxes amounting to $256,491, probable increased annual costs of $50,000 and provision for amortization of capital amounting to $117,024 annually, there will remain before Dominion and Provincial income taxes the sum of $401,485 on which Dominion income taxes of 15 per cent and Provincial income taxes of 5 per cent are considered applicable, resulting in a combined income tax of $80,297. When these income taxes are subtracted there remains $321,188 representing the estimated annual net earnings of the business, which is equivalent to 22.2 per cent of $1,450,000, which is, in the opinion of the Engineers, the minimum fair value of the property and business of the Division. This is expressed in statement form as follows:

Annual Gross Revenue - 5,500,000 bbl.@ 15¢	$825,000
Operating Expenses and Property Taxes (1938)	256,491
Balance	$568,509
Provision for Increased Annual Costs of Construction and Operation	50,000
Balance	$518,509
Provision for Amortization of Capital	117,024
Balance	$401,485
Provision for Dominion and Provincial Income Taxes	80,297
Balance - Net Income	$321,188

Equivalent to a return of 22.2%

Return Commensurate with Risk

On the face of the figures so far discussed this estimated return of 22.2 per cent on the minimum value of the property and business might appear excessive. In the opinion of the Engineers, however, it is warranted and justified by the risks inherent in the business.

In the United States, tariff rates on pipe line systems serving isolated fields are commonly calculated to return the investment in about three years. In the particular case under discussion it must be realized that there is no guarantee that the Division will handle 5,500,000 barrels of crude oil and naphtha annually, even though this volume of business seems indicated for the near future.

The Prairie Provinces of Canada are able to consume the products of approximately 17,000 barrels of crude oil daily, of which all but negligible amounts were imported, principally from the United States, prior to the discovery of oil in Turner Valley in 1936. The advent of Turner Valley crude caused crude imports from the United States to cease within two years, By the same token, if oil is discovered in Alberta in any of the several tests which are now under way, the available market in the Prairie Provinces will have to be divided between Turner Valley and the production from such new discoveries.

It is not economically feasible to transport Alberta crude to the Pacific Coast or to the Great Lakes, nor is there any need for Alberta crude in the United States where a condition

of over-production of crude currently exists. It follows, therefore, that any large discoveries of crude oil in any of the Prairie Provinces will have an adverse effect on the earnings of the Division for the reason that its costs are largely fixed in dollars and are thus to a great extent independent of the amount of oil handled.

To cite a concrete case of a parallel nature, the Engineers in 1934 constructed a pipe line and crude oil pumping station for a client in the state of Montana, which facilities were used in transporting Montana crude oil into Southern Alberta. In addition to the work done by the Engineers, the client himself constructed a gathering system of substantial size together with at least one oil storage tank of 80,000 barrels capacity. Within three years after these facilities were put into operation crude oil was discovered in Turner Valley and importation of Montana crude into Alberta stopped. These facilities are today idle.

During the year 1929 the Royalite Oil Company laid 15 miles of 6-inch trunk pipe line between Turner Valley and Calgary in a loop with, and paralleling, its then single 4-inch trunk line. This loop line was intended to provide for the transportation of the larger volumes of naphtha which the Company believed were to be produced in Turner Valley. The large volumes did not materialize and the loop line was never used for the purpose for which it was built, but was taken up in 1932 and the pipe used for other purposes, resulting in a loss to the Company represented by the costs of installing and reclaiming this 15 miles of 6-inch pipe.

These instances are cited as examples of the risks which are inherent in the business of constructing and operating oil pipe line systems serving individual fields. It is not intended to imply that similar risks apply to the construction and operation of major or transcontinental trunk lines, such as the systems extending from Oklahoma and Texas to the Atlantic seaboard in the United States, but the two experiences cited above clearly indicate the necessity of a greater margin of possible profit in the case of a system of the type discussed herein than would be considered proper today in a more stable business.

Pipe Line Earnings in the United States as Reported to the Interstate Commerce Commission for the year 1936.

In the United States pipe line companies are subject to the jurisdiction of the Interstate Commerce Commission if they are common carriers engaged in interstate transportation of oil by pipe line.

In 1936 there were 52 companies which reported to the Commission. The Commission's Bureau of Statistics has published Statement No. 3734 entitled "Selected Financial and Operating Statistics from Annual Reports of Pipe Line Companies, Year ended December 31, 1936."

While most of the pipe line companies reporting are larger than the operation under discussion here, there are three companies, the Arkansas Pipe Line Corporation, the International Pipe Line Company and the Toronto Pipe Line Company which are somewhat comparable in size and scope of operations. The Arkansas Pipe Line Corporation operates in Texas and Louisiana, International

Pipe Line Company in Montana, and Toronto Pipe Line Company in Texas and Montana. These companies reported for the year 1936 as follows:

Name	Investment in Carrier Property	Operating Revenue	Operating Expenses	Pipe Line Operating Income
Arkansas Pipe Line Corp.	$1,205,273	$ 887,161	$ 250,853	$ 501,205
International Pipe Line Co.	462,929	354,196	137,548	167,029
Toronto Pipe Line Co.	724,636	543,695	234,447	246,958

The percentage of "Investment in Carrier Property" represented by "Pipe Line Operating Income" of the three Companies for 1936 is, by computation, as follows:

Arkansas Pipe Line Corp.	41.6%
International Pipe Line Co.	36.1
Toronto Pipe Line Co.	34.1

To the Engineers' knowledge these companies are all engaged in operations not dissimilar to that of the Division. The ratio of pipe line operating income to investment as shown by these companies for the year 1936, which is the last year for which figures are available, is, therefore, fairly comparable with that which will be shown by the Royalite's Pipe Line Division when operating at its present indicated annual rate at the present tariff of 15 cents per barrel.

SUMMARY CLASSIFIED BY ACCOUNTS

Pipe Line Division

Summary Classified by Accounts

	Estimated Cost of Reproduction As of May 14, 1938	
Classification	New	Less Depreciation
Land	$ 1,500	$ 1,500
Rights of Way	20,000	20,000
Field Gathering Lines	269,573	256,276
Field Gathering Pumps	32,141	20,380
Tanks	147,100	117,980
Pumping Stations -		
No. 1	83,388	80,766
No. 2	48,695	40,855
No. 3	21,215	21,215
Trunk Pipe Lines	589,261	574,049
Oil and Fire Lines	16,993	14,873
Lines Not in Use	6,763	1,352
Miscellaneous Equipment	16,946	13,068
Miscellaneous Structures	20,700	18,500
Automotive Equipment	10,125	7,600
Furniture and Fixtures	2,756	2,756
Total	$1,287,156	$1,191,163
General Overhead Costs	128,716	119,117
Total	$1,415,872	$1,310,285
Working Capital and Materials and supplies	35,648	35,648
Total	$1,451,520	$1,345,933

Note: Above totals include full cost of items of property and construction in process of construction and installation as of May 14, 1938. In general, such incomplete construction will normally be finished by June 15, 1938.

PRICED INVENTORY

(And here follows pages 25 to 54 which show the breaking down of the Summary Classified by Accounts as shown on page 24. These are not extended).

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J. J. FRAWLEY

The Province of Alberta

IN THE MATTER OF THE PUBLIC INQUIRIES ACT

—and—

IN THE MATTER OF a Commission, dated the 12th day of October, A.D. 1938, to inquire into matters connected with Petroleum and Petroleum Products

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Commissioners:

The Honourable MR. JUSTICE McGILLIVRAY
(*Chairman*)

—and—

L. R. LIPSETT, ESQ.

Session:

CALGARY, Alberta 104-127

VOLUME 9

1. The Price - Waterhouse Statements.
2. Documents attached to Mr. Plotkin's Submission.
3. Exhibit 123. The Lion Oils - Sunburst Oils Agreement.

BOX. 84

Page.

EXHIBIT "100".

Price, Waterhouse Statement of Operations of Royalite Oil Company, with accompanying Report, in separate cover, see pages 284 to 299. 2575½.

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EXHIBIT "101"

Regulations issued under "The Dominion Water Power Act, particularly Regulation 48, sub-paragraph 13, having to do with the rate of return on Investment. 2627.

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EXHIBIT "102".

Pages 249 to 253 of a book "Economics of Public Utilities" by Nash, showing allowances in Rate Cases largely in the United States. 2631.

……

EXHIBIT "103"

Text Book dealing with Public Utilities' Valuations. 2645.

……

EXHIBIT "104",

ROYALITE OIL COMPANY LIMITED

DISTRIBUTION OF ADMINISTRATION OVERHEAD ON LABOUR BASIS

1938 (NINE MONTHS).

Payroll:

		%
Operating Labour:-		
For other companies and for Local Sales Station	$ 19,549.40	6.1925
Service Units, Utilities, etc.	148,259.09	46.9625
Crude Oil production, Natural Gasoline, Gas, Gas gathering, etc.,	105,000.98	33.2601.
Oil Gathering, Trunk Line Operating	42,886.86	13.5849
	$315,696.33	100.
Capital expenditures, including construction and drilling	311,229.97	
Total	$626,926.30	

DISTRIBUTION OF INDIRECT EXPENSES ON LABOUR BASIS

1938 (NINE MONTHS)

		%
Revenue - Producing labour:-		
Crude Oil Production, Natural Gasoline, Gas, Gas Gathering, etc.	$105,000.98	71.0004
Oil Gathering, Trunk Line Operating	42,886.86	28,9996
	$147,887.84	100.

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EXHIBIT "105".

ROYALITE OIL COMPANY LIMITED
PIPE LINE DEPARTMENT

Comparison of percentages of Administration and Indirect Costs allocated to the Pipe Line Department by Price, Waterhouse & Co. and by Harvey & Morrison.

YEAR	Price, Waterhouse & Co. Percentage	Harvey & Morrison Percentage
1934	10.26695	7.94142
1935	10.25055	4.25365
1936	12.20245	8.28807
1937	15.09356	14.18656
1938	28.24993	18.29067

....

EXHIBIT 106

ROYALITE OIL COMPANY LIMITED

Statement of **Indirect** Operating Costs
for the Nine Months ended September 30,1938

Boiler Plant Expense		$19,697.70
Electric Plant Expense		18,746.64
Turner Valley Office Expense		15,133.31
Engineering Expense		8,124.56
Laboratory Expense		9,962.86
General Plants Expense		6,603.24
Fuel Gas Lines Expense		10,624.42
Camp and Sanitation Expense		1,714.77
Fire Equipment Expense		5,292.71
Vacation Expense		19,688.26
Annuities and Benefits		2,117.42
Employees' Group Assurance		2,336.98
Employees' Welfare Expense		778.30
Surplus Property Expense		50.54
Sales of Materials and Supplies, Inventory adjustments, Bad Debts, Miscellaneous General Operating Charges and Credits		5,576.65 (R)
Residual balances of service units etc. from which charges have been made to the appropriate accounts on a unit or similar basis:		
Trucks and Tractors	2,551.32 (R)	
Company Garage	990.64 (R)	
Water System	9,639.36	
Forge and Machine Shop	2,675.53 (R)	
Storehouse	5,634.96	
Residential Quarters	4,546.22	
Employees' Garage	753.88 (R)	
Used Material Warehouse	6,090.23	
Ditching Machine Expense	1,674.43 (R)	17,264.97
		$132,560.03

Note: "R" indicates figures in red

Exhibit 107

ROYALITE OIL COMPANY LIMITED

ADMINISTRATION - 1938 - NINE MONTHS

Administration Officers	$ 20,438.35
Employees Administration Office	21,648.97
Travelling - Administration Officers and Employees	2,740.70
Travelling - Directors	561.80
Legal and Audit Fees	15,183.00
Oapital Stock - Expense less Fees	43.79
Insurance	540.90
Rent	893.99
Repairs - Office Furniture etc.	347.20
Telephone and Telegraph	2,762.42
Postage and Excise	1,032.14
Stationery and Office Supplies	1,805.63
Subscriptions and Dues	614.00
Contributions and Donations	785.23
Death Benefits	363.00
Medical, Sickness and Accident Benefits	70.00
W. C. Board Assessment	3,267.35
Toronto Office Charges	3,837.48
Employees Welfare Expensse	668.47
Miscellaneous	6,070.04
Board Expense	1,649.77
Allocation Charges reversed	6,389.56 (R)
	$ 78,934.65
Taxes (Corporation Tax - $23,005.45)	23,175.60
	$102,110.25

Note: "R" indicates figures in red

EXHIBIT 108.

ROYALITE OIL COMPANY LIMITED

DISTRIBUTION OF ADMINISTRATION OVERHEAD ON LABOUR BASIS

	1934		1935		1936		1937		1938 (Nine Months)	
	Payroll	%	Payroll	%	Payroll	%	Payroll	%	Payroll	%
Field Payroll:										
Operating Labour:-										
For other companies and for Local Sales Station	$ 17,761.38	9.6616	$ 19,535.54	9.3705	$ 23,009.74	8.5679	$ 22,161.44	6.7384	$ 19,549.40	6.1925
Service Units, Utilities, etc.	58,474.40	31.8079	76,512.09	36.7002	94,292.15	35.1108	139,958.84	42.5560	148,259.09	46.9625
Crude Oil production, Natural Gasoline, Gas, Gas gathering etc.	95,861.57	52.1452	100,074.54	48.0023	132,106.54	49.1914	140,743.85	42.7946	105,000.98	33.2601
Oil gathering, Trunk Line operating	11,738.50	6.3853	12,356.52	5.9270	19,147.78	7.1299	26,017.78	7.9110	42,886.86	13.5849
	$183,835.85	100.	$208,478.69	100.	$268,556.21	100.	$328,881.91	100.	$315,696.33	100.
Capital expenditures, including construction and drilling	72,479.05		188,975.86		151,807.14		293,684.24		311,229.97	
Total	$256,314.90		$397,454.55		$420,363.35		$622,566.15		$626,926.30	
	DISTRIBUTION OF INDIRECT EXPENSES ON LABOUR BASIS									
Revenue-producing Labour:										
Crude Oil production, Natural Gasoline, Gas, Gas gathering, etc.	$ 95,861.57	89.0906	$100,074.54	89.0097	$132,106.54	87.3407	$140,743.85	84.3983	$105,000.98	71.0004
Oil gathering, Trunk Line Operating	11,738.50	10.9094	12,356.52	10.9903	19,147.78	12.6593	26,017.78	15.6018	42,886.86	28.9996
	$107,600.07	100.	$112,431.06	100.	$151,254.32	100.	$166,761.63	100.	147,887.84	100.

EXHIBIT "109".

ROYALITE OIL COMPANY LIMITED

PIPE LINE DEPARTMENT

Balance December 31, 1925 and yearly additions, showing
calculation of weighted average number of years during which
in investment was employed on basis of amortizing capital
completely by December 31, 1946.

	Percentage Utilities Assets	Direct Assets	Total		Equivalent for One Year
1925	$ 8,019.93	$ 152,369.84	$ 160,389.77	21 years	$ 3,368,185.17
1926	889.63	10,769.52	11,659.15	20½ "	239,012.58
1927	33,409.60	37,442.50	70,852.10	19½ "	1,381,615.95
1928	23,274.23	100,498.74	123,772.97	18½ "	2,289,799.94
1929	32,514.48	302,628.20	335,142.68	17½ "	5,864,996.90
1930	4,435.65	45,922.28	50,357.93	16½ "	830,905.85
1931	1,327.77	35,397.90R	34,070.13R	15½ "	528,087.02R
1932	1,812.71	68,260.86R	66,448.15R	14½ "	963,498.18R
1933	2,008.55R	24,027.61R	26,036.16R	13½ "	351,488.16R
1934	6,202.82R	3,546.54	2,656.28R	12½ "	33,203.50R
1935	2,169.09	962.05	3,131.14	11½ "	36,008.11
1936	5,459.30	51,273.50	56,732.86	10½ "	595,695.03
1937	10,588.73	411,763.40	422,352.13	9½ "	4,012,345.24
1938	5,334.82	475,660.30	480,995.12	8-5/8"	4,148,582.91
	$121,024.57	$1,465,150.56	$1,586.175.13		$20,890,870.82

$$\frac{\$20,890,870.82}{1,586,175.13} = 13,171 \text{ years.}$$

NOTE: "R" indicates figures in red.

EXHIBIT 110

PRICE, WATERHOUSE & CO.

61 Canada Life Building,
CALGARY

January 7, 1939.

Exhibits A. and B. attached hereto have been prepared applying the same principles as are set out in our report dated January 7, 1939 and the exhibits attached thereto. The same comments apply also to Exhibits C. and D., except that in the case of these exhibits a salvage value of 10% for the 5, 10 and 15 year periods and 5% for the 20, 25 and 30 year periods has been assumed.

We wish to point out that the income tax per barrel shown on the attached statements is the income tax on the profit actually made in these years ahd that there should be substituted therefore the income tax per barrel which will emerge from such rate as may be set.

"Price, Waterhouse & Co.

Chartered Accountants.

Exhibit A

ROYALITE OIL COMPANY LIMITED

PIPE LINE DEPARTMENT

STATEMENT OF INVESTMENT, NET EARNINGS AND RATE OF RETURN ON VARIOUS AMORTIZATION BASES TO 100%

Amortization Basis	1931	1932	1933	1934	1935	1936	1937	9 Months ended September 30, 1938	Average	Weighted Average Number of Years Capital Invested
5 years from January 1, 1939 Net Investment Net Earnings Rate of Return	 $646,140.06 44,551.27 6.89%	 $565,069.67 51,744.47 9.16%	 $463,069.56 79,840.14 17.13%	 $421,434.99 112,034.32 26.58%	 $383,567.79 95,900.56 25.00%	 $405,342.39 69,527.56 17.24%	 [illegible] [illegible] 45.07%	 [illegible] [illegible] 33.62%	 [illegible] [illegible] 24,57%	10.17
10 years from January 1, 1939 Net Investment Net Earnings Rate of Return	 $685,231.64 54,393.85 7.94%	 $615,346.33 60,605.01 9.85%	 $524,227.23 87,436.98 16.68%	 $489,421.91 119,537.48 24.38%	 $460,505.04 102,996.60 22.37%	 $492,859.51 78,050.35 15.84%	 $744,776.93 302,375.07 40.60%	 [illegible] [illegible] 31.36%	 $652,443.60 152,746.01 23.41%	15.17
15 years from January 1, 1931 Net Investment Net Earnings Rate of Return	 $709,200.32 60,349.86 8.51%	 $646,158.32 66,027.56 10.22%	 $559,978.00 92,170.37 16.46%	 $531,328.17 123,929.92 23.32%	 $508,034.86 107,456.74 21.15%	 $547,932.76 83,160.49 15.18%	 $815,035.83 312,403.79 38.35%	 [illegible] [illegible] 30.07%	 $703,305.48 159,884.95 22.73%	20.17
20 years from January 1, 1939 Net Investment Net Earnings Rate of Return	 $725,416.27 64,345.10 8.87%	 $666,992.54 69,687.56 10.45%	 $584,186.94 95,397.18 16.33%	 $559,740.91 127,072.84 22.70%	 $540,294.78 110,508.58 [illegible]	 $585,251.12 86,588.39 14.80%	 $861,708.13 318,484.73 [illegible]	 [illegible] 402,209.64 [illegible]	 $737,264.69 164,425.04 22.30%	25.17
25 years from January 1, 1939 Net Investment Net Earnings Rate of Return	 $737,123.21 67,212,14 9.12%	 $682,026.34 72,324.33 10.60%	 $601,670.43 97,736.17 16.24%	 $580,274.66 129,356.26 22.29%	 $563,623.06 112,725.65 20.00%	 $612,212.81 89,051.74 14.55%	 $895,073.40 322,609.40 36.04%	 $1,420,869.10 407,840.08 28.70%	 $761,609.13 167,594.27 22.01%	30.17
30 years from January 1, 1931 Net Investment Net Earnings Rate of Return	 $745,974.37 69,370.17 9.30%	 $693,388.30 74,314.41 10.72%	 $614,890.73 99,508.83 16.18%	 $595,808.20 131,069.43 22.00%	 $581,277.43 114,403.37 19.68%	 $632,605.00 [illegible] 14.37%	 $920,144.31 325,604.81 35.35%	 $1,455,381.96 411,832.33 28.30%	 $779,933.79 169,940.25 21.79%	35.17

ROYALITE OIL COMPANY LIMITED

PIPE LINE DEPARTMENT

STATEMENT OF NET PROFIT AND COSTS PER BARREL ON VARIOUS AMORTIZATION BASES TO 100%

Amortization Basis	1931 Cents per Barrel	1932 Cents per Barrel	1933 Cents per barrel	1934 Cents per Barrel	1935 Cents Per Barrel	1936 Cents per Barrel	1937 Cents Per Barrel	9 Months ended September 30, 1938 Cents Per Barrel	Average Cents per Barrel
5 years from Januaryl, 1939									
Cost per barrel	12.61	15.54	13.14	10.11	10.44	13.53	7.52	7.22	9.41
Income tax per barrel	.72	1.63	2.51	2.61	2.87	2.10	3.26	[illegible]	2.30
Total	13.33	17.17	15.65	12.72	13.31	15.63	10.78	[illegible]	11.71
Net Profit	4.08	8.28	12.73	12.28	11.40	[illegible]	11.53	[illegible]	[illegible]
10 years from January 1, 1939									
Cost per barrel	11.55	13.84	11.69	9.14	9.37	12.25	6.42	6.21	8.31
Income tax per barrel	.88	1.92	2.75	2.78	3.09	2.36	3.51	2.35	[illegible]
Total	12.43	15.76	14.44	11.92	12.46	14.61	9.93	8.56	[illegible]
Net Profit	4.98	9.69	13.94	13.08	12.34	9.43	12.43	8.27	[illegible]
15 years from January 1, 1939									
Cost per barrel	10.91	12.80	10.79	8.53	8.71	11.47	5.89	5.83	7.73
Income tax per barrel	.98	2.09	2.90	2.88	3.22	2.52	[illegible]	[illegible]	[illegible]
Total	11.89	14.89	14.69	11.41	11.93	13.99	9.51	[illegible]	10.37
Net Profit	5.52	10.56	14.69	13.59	12.87	10.05	12.85	8.60	[illegible]
20 years from January 1, 1939									
Cost per barrel	10.48	12.10	10.17	8.11	8.25	10.96	5.57	5.58	7.36
Income tax per barrel	1.04	2.20	3.01	2.96	3.31	2.61	3.69	2.48	2.72
Total	11.52	14.30	13.18	11.07	11.56	13.57	9.26	8.06	10.08
Net Profit	5.89	11.15	15.20	13.93	13.24	10.47	13.10	[illegible]	[illegible]
25 years from January									
Cost per barrel	10.17	11.60	9.72	7.81	7.92	10.59	5.35	5.43	7.11
Income tax per barrel	1.09	2.28	3.08	3.01	3.37	2.69	3.74	2.51	2.76
Total	11.26	13.88	12.80	10.82	11.29	13.28	9.09	7.94	9.87
Net Profit	6.15	11.57	15.58	14.18	13.51	10.76	13.27	8.91	10.89
30 years from January 1, 1931									
Cost per barrel	9.94	11.22	9.39	7.58	7.67	10.20	5.20	5.31	6.92
Income tax per barrel	1.12	2.35	3.13	3.05	3.42	2.75	3.78	2.54	2.80
Total	11.06	13.57	12.52	10.63	11.09	13.05	8.98	7.85	9.72
Net Profit	6.35	11.88	15.86	14.37	13.71	10.99	13.39	9.00	11.04

Exhibit C.

ROYALITE OIL COMPANY LIMITED

PIPE LINE DEPARTMENT

STATEMENT OF INVESTMENT, NET EARNINGS AND RATE OF RETURN ON VARIOUS AMORTIZATION BASES TO 90% FOR PERIODS FROM 5 YEARS TO 15 YEARS AND TO 95% FOR PERIODS FROM 20 YEARS to 30 YEARS

Amortization Basis	1931	1932	1933	1934	1935	1936	1937	9 Months ended September 30, 1938	Average	Weighted Average Number of Years Capital Invested
5 years from January 1, 1939										
Net Investment	$662,385.58	$583,306.53	$488,[illegible].01	$446,515.60	$410,563.02	$454,065.51	$665,[illegible].30	$1,07[illegible]	[illegible]	10.17
Net Earnings	49,471.28	54,871.73	82,065.81	111,002.22	97,550.26	71,580.10	2[illegible].61	[illegible],011.15	[illegible]	
Rate of Return	7.52%	9.38%	16.80%	25.0[illegible]%	23.76%	15.[illegible]%	[illegible]	[illegible]	[illegible]	
10 years from January 1, 1939										
Net Investment	$697,602.70	$630,78[illegible]	$541,413.78	$508,852.31	$481,776.23	$516,777.03	$774,135.72	$1,[illegible].66	$675,0[illegible]	15.17
Net Earnings	57,358.14	63,016.65	89,206.98	120,942.69	104,451.[illegible]	79,698.13	305,704.4[illegible]	[illegible]	15[illegible]7.05	
Rate of Return	8.22%	9.99%	16.48%	23.77%	21.68%	15.42%	39.49%	30.7[illegible]%	[illegible]	
15 years from January 1, 1939										
Net Investment	$719,193.31	$658,640.14	$573,914.54	$547,129.22	$525,386.96	$567,464.07	$832,776.31	$1,34[illegible]	$721,[illegible].69	20.17
Net Earnings	62,732.89	67,984.95	93,634.33	$125,270.76	108,681.88	84,52[illegible].67	31[illegible]1.1[illegible]	397,[illegible].30	161,[illegible].30	
Rate of Return	8.72%	10.32%	16.32%	22.90%	20.69%	14.90%	37.5[illegible]%	[illegible]	22.44%	
20 years from January 1, 1939										
Net Investment	$729,608.41	$672,230.93	$590,045.47	$566,395.73	$547,613.04	$593,497.64	$871,675.41	$1,3[illegible],44[illegible].01	$741,[illegible]	25.17
Net Earnings	65,341.45	70,510.85	96,019.96	127,646.52	111,035.13	87,171.95	319,[illegible].97	40[illegible].58	16[illegible]	
Rate of Return	8.96%	10.49%	16.27%	22.54%	20.28%	14.69%	36.66%	29.08%	22.19%	
25 years from January 1, 1939										
Net Investment	$740,734.31	$686,540.04	$606,725.43	$586,022.28	$569,953.83	$619,3[illegible].04	$90[illegible],871.[illegible]	$1,[illegible].79	$758,[illegible].67	30.17
Net Earnings	68,068.5[illegible]	73,034.69	98,277.66	129,856.90	113,186.54	89,[illegible]60.02	32[illegible]7.73	[illegible]	168,[illegible].97	
Rate of Return	9.19%	10.64%	16.20%	22.16%	19.86%	14.[illegible]%	3[illegible]%	[illegible]	21.91%	
30 years from January 1, 1939										
Net Investment	$749,146.08	$697,353.58	$619,335.41	$600,865.97	$586,853.10	$63[illegible]	$927,702.74	$1,465,831.73	$785,747.38	
Net Earnings	70,120.81	74,939.05	99,987.59	131,533.22	114,817.76	91,3[illegible]	326,366.85	412,899.92	170,583.72	
Rate of Return	9.36%	10.75%	16.14%	21.89%	19.56%	14.30%	35.18%	28.17%	21.71%	

ROYALITE OIL COMPANY LIMITED

PIPE LINE DEPARTMENT

STATEMENT OF NET PROFIT AND COSTS PER BARREL ON VARIOUS AMORTIZATION BASES TO 90%, FOR PERIODS FROM 5 YEARS TO 15 YEARS AND TO 95% FOR PERIODS FROM 20 YEARS to 30 YEARS

Amortization Basis	1931 Cents per barrel	1932 Cents per barrel	1933 Cents per barrel	1934 Cents per barrel	1935 Cents per barrel	1936 Cents per barrel	1937 Cents per barrel	9 Months ended September 30, 1938 Cents per barrel	Average Cents per barrel
5 years from January 1, 1939									
Cost per barrel	12.19	14.94	12.71	9.85	10.17	13.23	7.25	6.99	9.11
Income tax per barrel	.78	1.73	2.59	2.65	2.93	2.16	3.32	2.17	2.37
Total	12.97	16.67	15.30	12.50	13.10	15.39	10.57	9.16	11.48
Net Profit	4.44	8.78	13.08	12.50	11.70	8.65	11.79	7.60	9.28
10 years from January 1, 1939									
Cost per barrel	11.23	13.38	11.35	8.93	9.16	12.00	6.24	6.10	8.10
Income tax per barrel	.93	1.99	2.81	2.81	3.13	2.41	3.55	2.36	2.56
Total	12.16	15.37	14.16	11.74	12.29	14.41	9.79	8.46	10.66
Net Profit	5.25	10.08	14.22	13.26	12.51	9.63	12.57	8.39	10.10
15 years from January 1, 1939									
Cost per barrel	10.65	12.43	10.50	8.35	8.52	11.27	5.75	5.72	7.56
Income tax per barrel	1.02	2.15	2.96	2.91	3.26	2.55	3.66	2.45	2.68
Total	11.67	14.58	13.46	11.26	11.78	13.82	9.41	8.17	10.24
Net Profit	5.74	10.87	14.92	13.74	13.02	10.22	12.95	8.68	10.52
20 years from January 1, 1939									
Cost per barrel	10.37	11.95	10.05	8.03	8.17	10.87	5.51	5.54	7.30
Income tax per barrel	1.06	2.23	3.03	2.97	3.33	2.63	3.71	2.49	2.72
Total	11.43	14.18	13.08	11.00	11.50	13.50	9.22	8.03	10.02
Net Profit	5.98	11.27	15.30	14.00	13.30	10.54	13.14	8.82	10.74
25 years from January 1, 1939									
Cost per barrel	10.08	11.46	9.62	7.74	7.85	10.51	5.31	5.39	7.05
Income tax per barrel	1.10	2.31	3.10	3.02	3.39	2.70	3.75	2.52	2.77
Total	11.18	13.77	12.72	10.76	11.24	13.21	9.06	7.91	9.82
Net Profit	6.23	11.68	15.66	14.24	13.56	10.83	13.30	8.94	10.94
30 years from January 1, 1939									
Cost per barrel	9.86	11.10	9.29	7.52	7.60	10.24	5.16	5.28	6.87
Income tax per barrel	1.13	2.37	3.15	3.06	3.44	2.76	3.79	2.55	2.81
Total	10.99	13.47	12.44	10.58	11.04	13.00	8.95	7.83	9.68
Net Profit	6.42	11.98	15.94	14.42	13.76	11.04	13.42	9.02	11.08

EXHIBIT "111".

ROYALITE OIL COMPANY LIMITED

PIPE LINE DEPARTMENT

ESTIMATED PROVISION FOR AMORTIZATION - YEAR 1939.

On Direct Assets:

Amount of amortization as taken from Exhibit C-8		$ 72,429.52
Add		
Provision on incomplete construction which had not been closed out at September 30, 1938, and on which no amortization was provided in the statement for the nine months then ending	$ 6,439.95	
Additional 3 months amortization being 1/3 of the above amount of $72,429.52	24,143.18	
1/17 of 1938 additions (to bring to yearly basis)	27,980.02	
1/15 of additions per budget for 1939 - $260,000.00	17,333.33	75,896.48
		$148,326.00

On Utilities:

Amount of amortization as taken on Exhibit C-8		$ 13,804.95
Add		
1/3 thereof to bring to a complete year	4,601.65	
28.9996% of 1/17 of 1938 additions	337.79	4,939.44
		$ 18,744.39
Total Direct Assets and Utility Assets		$167,070.39

EXHIBIT 112.

ROYALITE OIL COMPANY LIMITED

MOVEMENT IN ADMINISTRATIVE AND INDIRECT COSTS AND IN PAYROLLS CHARGEABLE TO CAPITAL EXPENDITURES

	1934	1935		1936		1937		1938	
	Amount	Amount	% Increase or Decrease "R" from previous year	Amount	% Increase or Decrease "R" from previous year	Amount	% Increase or Decrease "R" from previous year	Amount	% Increase or Decrease "R" from previous year
Administrative and General Expenses	$ 80,056.77	$ 79,431.08		$ 67,430.00		x $35,178.85) 78,496.59)		$136,147.00	
Utility Expenses and Service Units:									
Boiler Plant Expense	$ 25,817.94	$ 31,672.03		$ 36,543.89		$26,227.24		$ 26,263.60	
Electric Plant Expenses	21,104.14	20,879.42		24,600.34		24,218.96		24,995.52	
Turner Valley Office Expense	11,239.44	11,277.84		11,924.41		14,662.64		20,177.74	
Engineering	4,362.67	4,530.54		5,331.99		7,710.02		10,832.74	
Laboratory	9,520.14	12,071.63		14,969.55		12,512.94		13,283.81	
General Tools Room Expense	5,141.62	10,099.01		4,177.32		1,681.92			
Fuel Gas Lines	2,204.30	4,947.46		11,594.51		8,501.93		14,165.89	
Camp Sanitation Expense	725.82	992.32		2,201.16		2,086.13		2,286.35	
Fire Equipment Expense	1,801.79	3,794.93		4,710.30		4,133.74		7,048.83	
General Plants Expense	-	-		-		9,187.31		8,304.32	
	$ 81,917.86	$100,265.18		$116,053.47		$110,922.83		$127,858.81	
xx Administrative and General Expenses and Utility Expenses and Service Units	$161,974.63	$179,696.26	10.94	$183,483.47	2.11	x $ 35,178.85 189,419.42	19.17 3.24	$264,005.81	17.55
						$224,598.27	22.41		
Payrolls charged as Capital Expenditures	$72,479.05	$188,975.86	160.73	$151,807.14	"R" 19.67	$293,684.24	93.46	$414,973.29	41.30

x Increase represented by Corporation Tax

xx Exclusive of residual balances of service departments; from which charges are made to capital expenditures and operations on a unit basis or by job orders; and excluding miscellaneous charges and credits not directly applicable to operations.

NOTE:
In the above statement the 1938 amounts have been brought to the basis of a complete year by increasing the actual amount for the nine months ending September 30, 1938 by one-third.

NOTE: Percentage Column "R" means Red and Decrease

EXHIBIT 113

ROYALITE OIL COMPANY LIMITED

Statement showing average daily revenue from Pipe Lines for the period from March 1, 1927 to November 30, 1938

Period	Average Daily Pumpings	Rate		Average Daily Revenue	Days
March 1, 1927 to December 31, 1927	786	5¢		$ 39.30	306
January 1, 1928 to December 31, 1928					
Naphtha	976	5¢	$48.80		
Crude Oil	224	25¢	56.00	104.80	366
January 1, 1929 to April 30, 1929					
Naphtha	1276	5¢	63.80		
Crude Oil	329	30¢	98.70	162.50	120
May 1, 1929 to December 31, 1930	3005	30¢		901.50	610
January 1, 1931 to February 10,1931	4256	30¢		1,276.80	41
[illegible]ruary 11, 1931 to March 31, 1932	2660	15¢		399.00	416
April 1, 1932 to December 31, 1932	1477	30¢		443.10	275
January 1, 1933 to September 30, 1933	1479	30¢		443.70	273
October 1, 1933 to October 3, 1936	2208	25¢		552.00	1099
October 4, 1936 to August 31, 1937	4529	22½¢		1,019.03	332
September 1, 1937 to January 4,1938	9789	17¢		1,664.13	126
January 5, 1938 to November 30,1938	16485	15¢		2,472.75	330

EXHIBIT 114

ROYALITE OIL COMPANY LIMITED

Cash Investment in Pipe Line Department Direct Assets showing proportion invested annually from Profits

	Balance Available	Add Profit	Add Provision for Amortization of Direct Assets by Dec.31,1946	Cash Available	Deduct Cash Invested in Direct Assets	Balance Available
1925					$ 152,369.84	$152,369.84R
1926	$152,369.84R	$ 6,712.84R	$ 7,518.38	$151,564.30R	10,769.52	162,333.82R
1927	162,333.82R	12,099.18R	8,741.11	165,691.89R	37,442.50	203,134.39R
1928	203,134.39R	14,715.54R	12,417.36	205,432.57R	100,498.74	305,931.31R
1929	305,951.31R	159,602.53	23,780.06	122,548.72R	302,628.20	425,176.92R
1930	425,176.92R	211,839.96	33,818.16	179,518.80R	45,922.28	225,441.08R
1931	225,441.08R	51,102.20	34,067.88	140,271.00R	35,597.90R	104,873.10R
1932	104,873.10R	57,627.03	30,572.19	16,673,38R	68,260.86R	51,586.98
1933	51,586.98	84,864.60	27,328.45	163,780.03	24,027.61R	187,807.64
1934	187,807.64	116,852.36	26,580.40	331,240.40	3,546.54	327,693.86
1935	327,693.86	100,582.54	26,764.09	455,040.49	962.05	454,078.44
1936	454,078.44	75,217.88	29,247.52	558,543.84	51,273.56	507,270.28
1937	507,270.28	296,153.77	53,360.88	856,784.93	411,763.40	445,021.53
Sept. 1938	445,021.53	368,698.33	72,429.52	886,149.38	475,660.30	410,489.08
		$1,489,013.64	$386,626.00		$1,465,150.56	

Note:
No allowance other than provision for amortization of indirect assets, has been made for cash investment in Pipe Line Department proportion of additional indirect assets acquired during the above period.

RECONCILIATION

Profits 1925 - 1930 as estimated by the Company		$ 337,914.93
Profits 1931 - September 30, 1938 as per Exhibit B.		1,151,098.71
		$1,489,013.64
Provision for amortization of direct assets as per Exhibit A.		386,626.00
		$1,875,639.64
Net cash investment in direct assets - September 30, 1938		
As per Exhibit A.	$1,227,320.41	
Plus ½ 1938 additions $475,660.30	237,830.15	1,465,150.56
Net cash available September 30, 1938 - assuming no dividends were paid, and ignoring interest		$ 410,489.08

Note: "R" indicates figures in red.

EXHIBIT 114 (cont'd)

ROYALITE OIL COMPANY LIMITED

Statement showing amount of provision for amortization of indirect assets included in profit of $1,489,013.64 for the Period from January 1, 1926 (covering Pipe Line operations from November 24,1925) to September 30, 1936

Provision for amortization for the seven years and nine months ended September 30, 1938 as per Exhibit B.	$59,399.38
Provision for amortization for the five years ended December 31, 1930, included in the Company's estimated profits for this period	16,054.17
	75,453.55

EXHIBIT 115

ROYALITE OIL COMPANY LIMITED

PIPE LINE DEPARTMENT

Balance December 31, 1925 and yearly additions, showing calculation of weighted average number of years during which investment in Direct Assets was employed on basis of amortizing capital completely by December 31, 1946

	Direct Assets		Equivalent for One Year
1925	$ 152,369.84	21 years	$ 3,199,766.64
1926	10,769.52	20½ "	220,775.16
1927	37,442.50	19½ "	730,128.75
1928	100,498.74	18½" "	1,859,226.69
1929	302,628.20	17½ "	5,295,993.50
1930	45,922.28	16½ "	757,717.62
1931	35,397.90R	15½ "	548,667.45R
1932	68,260.86R	14½ "	989,782.47R
1933	24,027.61R	13½ "	324,372.73R
1934	3,546.54	12½ "	44,331.75
1935	962.05	11½ "	11,063.58
1936	51,273.56	10½ "	538,372.38
1937	411,763.40	9½ "	3,911,752.30
1938	475,660.30	8 5/8 "	4,102,570.09
	$1,465,150.56		$18,808,875.81

$$\frac{\$18,808,875.81}{1,465,150.56} = 12.8375 \text{ years}$$

NOTE: "R" indicates figures in red.

EXHIBIT 116

ROYALITE OIL COMPANY LIMITED

PIPE LINE DEPARTMENT

COMPARATIVE STATEMENT OF COST OF HANDLING, GATHERING AND TRANSPORTING OIL IN CENTS PER BARREL, AT VARYING RATES OF RETURN ON INVESTED CAPITAL BASED ON THE NINE MONTHS PERIOD ENDING SEPTEMBER 30, 1938

	AMORTIZATION FROM JANUARY 1, 1939 ON THE BASIS OF					
	5 years	10 years	15 years	20 years	25 years	30 years
Invested Capital	$1,079,679.98	$1,249,185.66	$1,342,204.53	$1,388,444.01	$1,432,802.79	$1,465,831.73
Cost per Barrel	Cents 6.99	Cents 6.10	Cents 5.72	Cents 5.54	Cents 5.39	Cents 5.28
Cost per barrel after providing for Income Tax and a return on the invested capital at the rates following:						
10%	9.26	8.73	8.54	8.46	8.40	8.36
12½%	9.82	9.38	9.25	9.18	9.16	9.13
15%	10.39	10.04	9.95	9.91	9.90	9.90
17½%	10.96	10.69	10.66	10.64	10.66	10.66
20%	11.53	11.36	11.36	11.37	11.42	11.45

Page in Record

EXHIBIT 117 3015

Certified Copy of the Order of the Board of Public Utilities, Order No. 6327, of which the witness, Kenneth Morrison, read two paragraphs into the Record, dealing with "Rate of Return"

EXHIBIT 118

3033

ROYALITE OIL COMPANY LIMITED

Statement showing Amount of Cash Invested annually in Direct Assets of the Pipe Line Department in addition to Profits and Amortization Reserves, or the Amount which could have been withdrawn

	Cash Invested	Cash to be withdrawn	Balance Available	Annual Amortization Requirements	Remainder Available
1925	$152,369.84		$152,369.84R		$152,369.84R
1926	9,963.98		162,333.82R	$ 7,518.38	169,852.20R
1927	40,800.57		203,134.39R	8,741.11	219,393.88R
1928	102,796.92		305,931.31R	12,417.36	334,608.16R
1929	119,245.61		425,176.92R	23,780.06	477,633.83R
1930		$199,735.84	225,441.08R	33,818.16	311,716.15R
1931		120,567.98	104,873.10R	34,067.88	225,216.05R
1932		156,460.08	51,586.98	30,572.19	99,328.16R
1933		136,220.66	187,807.64	27,328.45	9,564.05
1934		139,886.22	327,693.86	26,580.40	122,869.87
1935		126,384.58	454,078.44	26,764.09	222,490.36
1936		53,191.84	507,270.28	29,247.52	247,434.68
1937	62,248.75		445,021.53	53,360.88	130,825.05
1938 9 months	34,532.45		410,489.08	72,429.52	23,863.08
	$521,958.12	$932,447.20		$386,626.00	
		521,958.12			
		$410,489.08			

NOTE:
No allowance, other than provision for amortization of indirect assets - amounting to $75,453.55 - , has been made for cash investments in indirect assets, to the extent that such investments should be made from Pipe Line Department funds.

Note: "R" indicates figures in red.

EXHIBIT 119

ROYALITE OIL COMPANY LIMITED

PIPE LINE DEPARTMENT

Calculation showing distribution of indirect expenses for the nine months ended September 30, 1938, as between operating costs and capital expenditures on the basis of Pipe Line Department payrolls for that period, as they would have appeared on the books had the Company adopted Mr. Morrison's basis of distribution and closed its books before Mr. Morrison commenced his examination of the books.

		%
Payroll applicable to Pipe Line Department capital expenditures and operation	$107,063.30	100.
Payroll applicable to Pipe Line Department operation	$ 42,886.86	40.06
Payroll applicable to Pipe Line Department capital expenditures	64,176.44	59,94
	$107,063.30	100.00

40.06% of $42,922.76 = $17,193.78 to Operating Costs

59.94% of $42,922.76 = 25,728.98 to Capital Expenditures

Proportion of Indirect Expenses as per Statement No. 21 of Mr. Morrison's report	$20,662.65 22,260.11
	$42,922.76
The Total charge against the earnings of the nine months ending September 30, 1938 would then be:	
In operating costs as above	$17,193.78
Amortization of $25,728.98 on basis of 5 years from January 1, 1939 for one-half year 3/4 of 1/11 of $25,728.98	1,754.25
Total charge to operations in place of $42,922	$18,948.03

EXHIBIT 120

ROYALITE OIL COMPANY LIMITED

PIPE LINE DEPARTMENT

Statement of cost of handling, gathering and transporting oil in cents per barrel, including varying rates of return on invested capital, based on the nine months period ending September 30, 1938, with 100% amortization of investment by December 31, 1946 (8 years from January 1, 1939)

Invested Capital	$1,148,378.79
Cost per barrel	6.52 cents

Cost per barrel after providing for Income Tax and a return on the invested capital at the rates following:

	Cents
10%	8.93
12½%	9.53
15%	10.14
17½%	10.74
20%	11.34

EXHIBIT 121

ROYALITE OIL COMPANY LIMITED

MOVEMENT IN ADMINISTRATIVE AND INDIRECT COSTS AND IN PAYROLLS CHARGEABLE TO CAPITAL EXPENDITURES

	1934	1935		1936		1937		1938	
	Amount $	Amount $	% Increase or Decrease"R" from previous year	Amount $	% Increase or Decrease"R" from previous year	Amount $	% Increase or Decrease"R" from previous year	Amount $	% Increase or Decrease"R" from previous year
Administrative and General Expenses	80,056.77	79,431.05		67,430.00		x 35,178.85) 78,496.59)		136,147.00	
Utility Expenses and Service Units:									
Boiler Plant Expen se	25,817.94	31,672.03		36,543.89		26,227.24		26,263.60	
Electric Plant Expenses	21,104.14	20,879.42		24,600.34		24,218.96		24,995.52	
Turner Valley Office Expense	11,239.44	11,277.84		11,924.41		14,662.64		20,177.74	
Engineering	4,362.67	4,530.54		5,331.99		7,710.02		10,832.74	
Laboratory	9,520.14	12,071.63		14,969.55		12,512.94		13,283.81	
General Tools Rooms Expense	5,141.62	10,099.01		4,177.32		1,681.92			
Fuel Gas Lines	2,204.30	4,947.46		11,594.51		8,501.93		14,165.89	
Camp Sanitation Expense	725.82	992.32		2,201.16		2,086.13		2,286.36	
Fire Equipment Expemse	1,801.79	3,794.93		4,710.30		4,133.74		7,048.83	
General Plants Expense	-	-		-		9,187.31		8,804.32	
	81,917.86	100,265.18		116,053.47		110.922.83		127,858.81	
xx Administrative and General Expenses and Utility Expenses and Service Units	161,974.63	179,696.26	10.94	183,483.47	2.11	x 35,178.85 189,419.42	19.17 3.24	264,005.81	17.55
						224,598.27	22.41		
Payrolls charged as Capital Expenditures	72,479.05	188,975.86	160.73	151,807.14	19.67"R"	293,684.24	93.46	414,973.29	41.30
Drilling Payroll	3,980.45	25,737.26	546.	74,140.44	188.	139,561.11	88.	194,051.62	39.

x Increase represented by Corporation Tax

xx Exclusive of residual balances of service departments; from which charges are made to capital expenditures and operations on a unit basis or by job orders; and excluding miscellaneous charges and credits not directly applicable to operations.

NOTE:
In the above statement the 1938 amounts have been brought to the basis of a complete year by increasing the actual amount for the nine months ending September 30,1938 by one-third.

Special N.B.: "R" indicates Decrease and figures in Red

EXHIBIT 122

Report presented by the witness, L. L. Plotkins, extended in full beginning on Page 3174 of the Record except for the following which are documents attached to his report;

Royalite and Imperial Oil Company charges for pipe line and handling and loading, April - November, inclusive, 1933.

	Crude Delivered to Pipe Line	Crude Delivered to Refinery	Crude Delivered to Tank Cars
April to October, inc.	43,164.00	48,519.92	12,333.70
November	2,790.00	2,790.00	
	45,954.00	51,309.92	12,333.70

	Barrels	Charge	Total
Transportation Turner Valley to Calgary	63,643.62	15	9,546.60
Handling to Refinery	51,309.92	06	3,078.60
Handling to Tank Cars	12,333.70	05	616.70
			13,241.90

NOTE:

Difference between crude delivered to pipe line and crude delivered to refinery and loaded on tank cars amounting to 17,689,62 barrels was purchased from Imperial Oil and paid for.

PURCHASES	Imp. Oil Crude	Sunburst Crude	Hylo & Publix Crude	Texas Co. Standard & Ethyl Gas	Big West Standard Gas	Great West Ethyl Gas	Artic Lamp Kero.	Gas and Oil Plant Naphtha
January	29,939		26,330		12,140	800	700	8,846
			2,710					
February	14,111		15,080		14,540	400		10,045
			20,255					
March	55,966	305,062	32,908		19,825	1,300	820	28,415
April		355,743	19,210	16,004	15,148	1,455	625	80,948
May				55,941		2,253	728	93,704
June		286,874	19,026			155	70	44,213
July	64,960	328,779	2,595	49,665		555	390	25,493
August	157,897	260,147						4,380
				49,664		315	495	27,025
						28,738		
September	260,220	216,030		65,874		360	1,310	39,483
October	16,626	214,804		53,321		765	1,530	44,472
November	98,606	26,687		58,899		580	579	8,232
Total in gallons	678,325	1,992,076	137,892	349,368	61,653	37,414	7,247	413,254
								5,677,229
Total in barrels	19,380.71	56,916.45	39,397.71	9,981.94	1,761.51	1,068.97	207.05	11,807.25

Total Purchases in Barrels 140,521.59

Value of purchases Nov.30, 1938 $206,850.64
Daily average pur. of products 420.72 barrels.

Imperial Oil Limited,
Calgary, Alberta.

November 12, 1937.

Mr. L. S. Sweeney,
Lion Refining Co. Ltd.,
CALGARY, Alberta.

Dear Sir:-

Further to our several telephone conversations, I have been advised that a price of $1.72½ for 48/49 gravity Turner Valley crude has been set as of November 1st. As advised you by telephone, this price is fairly tentative, and upon use of the new pipeline arrangements now being constructed, and which should be available within the next sixty days or so, the price will then have to be adjusted in line with prices which will be quoted to all consumers receiving crude out of Calgary Refinery.

Yours very truly,

CMM:S

(Signed) C. M. Moore

COPY

November 13, 1937.

Mr. C, M. Moore,
Imperial Oil Limited,
CALGARY, Alberta.

Dear Sir:-

Mr. L. S. Sweeney has asked me to acknowledge your letter of the 12th and to advise you that he will be in touch with you regarding the various matters contained therein.

Yours truly,
LION REFINING COMPANY,
per

(Signed)
L. L. Plotkins.

S.

COPY

LION REFINING COMPANY

November 30, 1937.

Mr. C. M. Moore, Gen. Supt.,
Refinery Division,
Imperial Oil Limited,
CALGARY, Alberta.

Dear Sir:-

Following our interview of November 29th regarding the supply, delivery, and handling charges on Turner Valley crude to take care of my refinery, I want to know definitely if I can deal with your Company and the Royalite Company on a basis that I consider necessary for my operations.

I. Will you supply Lion Refining Co, with its requirements of pipeline or average grade Turner Valley crude, spot basis, on a year by year contract.

2. Will you deliver the oil in our storage on our property direct throughtthe pipeline at the closest contact point in quantities of 1,500 barrels or more at any one time.

3. What will be the published rate and conditions for gathering crude from the wells in Turner Valley and delivering the oil in the quantities mentioned to our storage tanks at the refinery, we to put in our own connecting lines and equipment to the nearest contact point on the pipeline.

4. What will be the terms of payment for crude, and terms of payment for the pipeline charges.

It is important for me to have these questions settled before December 15th, and I would consider it a favor if you would let me have a definite reply covering these points at your earliest convenience.

Yours truly,
LION REFINING COMPANY,
per
(Signed)
L. L. Plotkins.

LLP

COPY

. . . .

LION REFINING COMPANY

December 30, 1937

Mr. C. M. Moore,
Refinery Division,
Imperial Oil Ltd.,
CALGARY, Alberta.

Dear Sir:-

We would be pleased to know when we can expect a reply to our letter dated November 30th.

With the compliments of the season, we are

Yours very truly,
LION REFINING COMPANY,
per
(Signed)
L. L. Plotkins.

LLP

COPY

IMPERIAL OIL LIMITED
Calgary Alberta.

December 31, 1937

Mr. L. L. Plotkins,
Lion Oils Limited,
P. O. Box 415,
CALGARY, Alberta.

Dear Sir:-

We acknowledge receipt of your letter of December 31st, and beg to advise that at the earliest possible moment we will comply with your request.

Wishing you the compliments of the season,

Yours very truly,

(Signed) C. M. Moore,
Superintendent

CMM

……………………

LION REFINING COMPANY
Calgary, Alberta.

January 11, 1938.

Mr. J. H. McLeod, Pres.,
Royalite Oil Company,
CALGARY, ALBERTA.

Dear Sir:-

Confirming our interview with you of this date wherein we discussed the arrangement of pipeline deliveries of Turner Valley Crude from Turner Valley to our refinery on the McLeod Trail.

It was suggested by you that we continue to receive our crude from the Imperial Oil in Calgary as we have been doing,

until the new 6" portion of the pipeline has been completed into Calgary, as the route was not definitely settled and we might be called upon to change our connections for the proposed branch off to our tanks.

It is our understanding, on the basis of the information you supplied us that this change in the pipeline will be completed very shortly, weather permitting and we will be advised as soon as the exact route is determined and surveyed, so we can proceed with placing our line.

We hereby make application to your company for permission to connect into your pipeline at a point closest to our refinery with a suitable line leading to our storage tanks, so that you may be able to deliver on order any oil that we purchase, direct to our tanks through this connection. Quantities to be a minimum of 1500 barrels per single delivery. In regard to the size of the line and the other equipment which will be necessary to properly and safely connect to your pipeline, we stand ready to meet any reasonable requirements on the recommendation of your engineering department.

We would also ask that you advise us as to the charge, if any, over the published 15¢ per barrel rate that you will make for delivering the oil through our pipeline to our refinery. We would point that there is no charge made for this service by other pipeline companies in Montana, as the usual pipeline tariff covers gathering, storing and delivering the crude to the purchaser's tanks.

We require that these matters be settled as early as possible in order that we may complete plans for the handling of business for the coming season, it is our understanding from you that we will have your definite decision on these matters inside of two weeks.

Thanking you for your kind consideration, wishing you the best of health and happiness for the year now beginning, we remain,

Yours very truly,

LION REFINING COMPANY,

per

EXHIBIT "123".

THIS AGREEMENT made this 31st day of March, A.D. 1938.

BETWEEN:

SUNBURST OIL COMPANY, LIMITED, a body corporate with head office at the City of Vancouver, in the Province of British Columbia, (hereinafter called "the Producer")

OF THE FIRST PART,

-and-

LEON L. PLOTKINS, carrying on business at the City of Calgary, in the Province of Alberta, under the style and name of Lion Refining Company (hereinafter called "the Refiner)

OF THE SECOND PART,

-and-

LION OILS LIMITED, a body corporate with head office at the City of Calgary, aforesaid (hereinafter called "the Distributor").

OF THE THIRD PART,

-and-

PRUDENTIAL TRUST COMPANY LIMITED, a body corporate with head office at the City of Montreal, in the Province of Quebec, and an office at the City of Calgary, aforesaid (hereinafter called "the Trustee")

OF THE FOURTH PART,

WHEREAS by petroleum and natural gas lease No. 2521-S.L., dated the 13th day of May, 1925, from the Crown in the right of the Dominion of Canada William C. McEwen as Trustee, holds the petroleum and natural gas rights in, on and under the North half of Legal Subdivision One (1) of Section Twenty-nine (29), in Township Eighteen (18), Range Two. (2), West of the Fifth Meridian, in the Province of Alberta, hereinafter called "the said Lands"; and

WHEREAS by instrument in writing dated the 15th day of March, 1937, the said William C. McEwen and William R. Phillips, of the One Part, did sublet to the Producer herein the said petroleum and natural gas rights in, on and under the said lands: and

WHEREAS by Agreement in writing dated the 27th day of September 1937 made between the Producer herein, of the First Part therein, the said William C. McEwen and William R. Phillips, of the Second Part therein and one Harold C. Ralph, of the Third Part, the said sublease referred to in the next preceding recital hereof was continued in force and effect; and

WHEREAS by Agreement in writing dated the 16th day of December 1936 between the Producer herein, as the Company therein of the First Part, and the Trustee herein, as the Trustee therein of the Second Part, the Producer agreed to pay or cause to be paid to the Trustee the full proceeds of the sale of all production obtained, inter alia, from the first well to be drilled on the said lands, subject to the terms and trusts therein contained: and

WHEREAS an oil well, being the first, is now being drilled on the said lands under the pursuant to the hereinbefore mentioned Crown lease and sublease (which well is hereinafter referred to as "the said Well"; and

WHEREAS the Trustee is presently in possession of the said Well and is to continue in possession for the time and subject to the terms, trusts and conditions provided for in a certain agreement in writing dated the 25th day of September 1937 made between the Producer herein as the Company therein of the First Part, British Trans Canada Oils Limited of the Second Part, one Harold C. Ralph of the Third Part, and the Trustee herein as the Trustee therein of the Fourth Part, and as further provided for in a further agreement between the same parties dated the 21st day of February, 1938; and

WHEREAS the Distributor is engaged in, and carries on, the business of distributing and marketing petroleum products including those handled, treated or processed by the Refiner; and

WHEREAS the Refiner owns and operates a petroleum or oil refining plant at or neer the City of Calgary aforesaid and is desirous of purchasing his entire requirements for the said refinery, as presently constituted or hereafter extended, from the production of the said Well. and

WHEREAS it is contemplated that the said Well will shortly be brought into production and the Producer and the Trustee are desirous of making provision for the sale and disposal of the production therefrom and the Distributor is desirous of marketing the same as in this Agreement hereinafter set forth.

NOW THEREFORE THIS AGREEMENT WITNESSETH:

TERM OF AGREEMENT

1. This Agreement shall be effective for the entire period of the life or continuance of the said Well as a commercial producer but subject to the right of earlier termination as hereinafter provided.

PURCHASE AND SALE OF PRODUCTION

2. (a) The Distributor shall, continuously during the term of this Agreement, market and dispose of, and the Producer shall deliver, the entire production of the said Well subject to the terms and conditions hereinafter set forth.

(b) The Refiner covenants and agrees to and with the

Distributor and to and with the Producer and each of them that it will, during the term of this Agreement, purchase from and through the Distributor the production of the said Well up to the extent or limit of the entire requirements of the said refinery of the Refiner from time to time (hereinafter referred to as the "Refinery Production").

(c) Subject to the provisions of clause (13) of this Agreement, the Producer hereby appoints the Distributor its sole and exclusive agent to sell, market and dispose of any surplus production of the said Well that may from time to time be in excess of the Refinery Production referred to in the next preceding paragraph (b), which excess is hereinafter referred to as "the Surplus Production".

(d) The intention and agreement of the parties hereto is that the Refiner and the Distributor shall purchase, use, treat, process, distribute and market in their respective aforesaid businesses the production of the said Well in priority to and with preference over any other petroleum and/or petroleum products up to the extent and amount of the production of the said Well as the sam is produced from the said Well.

(e) The Distributor shall use its best and diligent endeavours to sell, market and dispose of the Surplus Production of the said Well to the best advantage of the Producer and so that as nearly as possible, having regard to seasonal and other conditions in Western Canada, the entire production of the said Well may be orderly ahd continuously sold and marketed.

(f) To the extent that the production of the said Well from time to time may be insufficient for the Refiner's business the Refiner shall be at liberty, from time to time, to purchase, use, treat, process,

distribute and market such products purchased from other sources, but not so as to prejudice the regular and orderly purchase and marketing of the production of the said Well.

(g) The Producer shall operate, and it shall be entitled to operate, continuously the said Well in accordance with established field practice from time to time so as to cause it to produce to its maximum capacity and as the law permits.

(h) The Producer shall not be under any obligation to sell or supply to either the Distributor or the Refiner any petroleum or petroleum products other than those produced from the said Well.

BEST ENDEAVORS

3. At all times, and continuously, during the term of this Agreement

(a) The Refiner shall maintain and operate the said Refinery in a good efficient and workmanlike manner and in accordance with good recognized practice with respect to such plants of similar capacity and equipment.

(b) The Distributor shall use and exert its best endeavors and due diligence to sell, market and distribute the production of the Refiner and of the said Well so that the maximum amount of the production of the said Well will be regularly and orderly purchased, treated, processed, distributed and marketed to the best advantage.

POINT OF DELIVERY

4. (a) Delivery of the Refinery Production to be sold hereunder shall be at the outgoing valves of the Producer's tanks situated at or near the location of the said Well. With respect to the Refinery

Production the Refiner and the Distributor shall pay and assume all charges and responsibility beyond such point or points of delivery.

(b) Delivery of the Surplus Production to be marketed hereunder shall be at the outgoing valves of the Producer's tanks situated at or near the location of the said Well or at such other points as may be mutually agreed upon from time to time.

TREATMENT OF PRODUCTION BY PRODUCER.

5. Any crude oil production from the said Well to be delivered by the Produver herein shall, if necessary, be treated by it in such manner as to cause the same to be freed of all water and shall not contain more than one-half of one (½%) per cent of bottom sediment prior to delivery to the pipe line or other carrier or purchaser.

SEPARATORS, TANKAGE AND STORAGE

6. (a) The Producer shall at its own expense, maintain:

(i) A separator or separators at or near the said Well for the efficient extraction of the production in accordance with the standard practice; and

(ii) Storage tanks at or near the said Well to a capacity of at least Three thousand (3,000) barrels of Thirty-five (35) Imperial gallons and thereat or elsewhere for such greater capacity, if any, as may be mutually agreed upon from time to time.

(b) The Distributor may, from time to time, provide storage facilities on the Refiner's own premises for storing a portion of the production of the said Well as may, for the time being, be beyond the then immediate requirements of the Refiner's refinery and the Distributor's market. Any such production so stored shall be and remain the property of the Producer until paid and settled

fpr by the Distributor. The Distributor shall be liable and responsible for the care and conservation of any production so stored and the maintenance of proper insurance thereon and shall account to the Producer for such stored production (due allowance being made for handling and evaporation losses) and upon the taking or use of such production by the Refiner for its refinery the same shall thereupon be deemed to have been sold by the Distributor and shall be paid and settled for at the prices and in the manner hereinafter provided. The Producer shall not be charged with, or liable for, any storage or pipe line charges with respect to such production but may be charged with the cost of insurance during the period of such storage.

(c) It is contemplated that in order to market the production of the well to the best advantage and to the maximum quantity, it may be deemed advisable from time to time to accumulate and store Surplus Production from the said Well for seasonal periods and to that end it may be necessary to erect or procure additional storage facilities as may be mutually approved or agreed upon by the parties from time to time and in that event all necessary and proper charges in connection with such storage and handling including insurance, shall be taken care of by the Distributor in the first instance but shall be chargeable by it to the Producer when settlement is made for the sale of such Surplus Production.

PRICES.

(a) The Distributor shall pay the Trustee for the account of the Producer for and in respect of all the Refinery Production from

said Well delivered hereunder the posted field prices prevailing in the Turner Valley field, at the time and place of production, applicable to the grade, kind and quality of such production so delivered.

(b) All the Surplus Production from the said Well sold or marketed by the Distributor shall be sold on the basis of the posted field prices prevailing in the Turner Valley field, at the time and place of production, applicable to grade, kind and quality of such production or with the approval of the Producer from time to time, at such other prices as may be available or expedient.

(c) The Distributor shall with respect to the Surplus Production of the said Well disposed of by it be entitled to charge and deduct from the proceeds thereof, in addition to the charges under paragraph (c) of clause (6), a commission at the rate of eight (8%) per cent of the sale price, F.O.B. Calgary or Turner Valley, Alberta, as the case may be, or seven and one-half (7½¢) cents per barrel of thirty-five (35) Imperial gallons whichever is the greater. Such rate or scale of commission shall be subject to review at the end of each twelve (12) months' period from and after the date hereof and in the event of the parties failing to agree as to the rate or scale for any such period the same shall be settled by arbitration in accordance with clause (15) of this Agreement. The Distributor shall not be entitled to any commission with respect to the Refinery Production nor shall the Distributor be entitled to any expenses or remuneration for or in respect of his marketing any of the production of the said Well other than those specifically provided for in this Agreement.

MEASUREMENT

8. (a) The amount of the Refinery Production of the said Well sold and

delivered hereunder shall be measured or checked by the representative of the Producer and the representative of the owner of the conveying pipe line and pipe line tickets shall govern as to all such production, such measurement shall be subject to the usual pipe line deduction prevailing from time to time for gathering and delivery losses, which said deductions shall also be applicable to deliveries other than to the pipe line.

(b) The amount of the Surplus Production of the said Well sold and delivered hereunder shall, if delivered to the pipe line carrier, be measured or checked as provided in the next preceding paragraph (a) and any other such production delivered otherwise shall be measured or checked by the representative of the Producer and the purchaser taking delivery.

(c) In the event of disagreement a barrel of crude oil shall be deemed to be thirty-five (35) Imperial gallons calculated at sixty (60°) degrees F.

STATEMENTS

9. The Distributor shall on or before the 20th day of each and every calendar month furnish to the Producer and the Trustee, at the office of the Trustee, at Calgary aforesaid, detailed and itemized written statements showing the amount of production from the said Well (segregating therein the Refinery Production and the Surplus Production) delivered at the point or points of delivery during the preceding calendar month and the computation of the amount payable with respect thereto in accordance with the terms of this Agreement. In case any such production has been delivered at the point or points of delivery, and stored as hereinbefore provided, the said monthly statements shall include and contain a full and complete accounting with respect thereto and shall, inter alia, show the disposition thereof. If the Producer and/or the Trustee so requires at any time or from time to time, such statements shall be verified by statutory declaration or declarations of the manager and/or other employee or

employees, agent or agents of the Distributor and/or the Refiner as the Producer and/or the Trustee shall stipulate and also by the production or inspection of vouchers as the Producer and the Trustee, or either of them, may require. The Producer and/or the Trustee by their agent or agents shall be entitled from time to time to inspect the books, records and accounts of the Distributor and/or the Refiner, each of whom shall make the same available for such inspection to the end that the Producer and/or Trustee may satisfy themselves that the terms of this Agreement are or have been complied with.

PAYMENT

10. (a) The Distributor shall on or before the 20th day of each calendar month make payment to the Trustee at its Office at Calgary aforesaid for the production of the said Well taken by the Refiner during the preceding calendar month and for the Surplus Production as hereinbefore defined sold by or through the Distributor during such preceding month, the first payment to be made on the 20th day of the month following upon the taking of production by the Refiner through the Distributor and/or the Distributor or any other Purchaser from or through the Distributor.

(b) The Distributor shall be personally and primarily liable and responsible for and doth hereby undertake payment of and for the sale price of both the Refinery Production and the Surplus Production and shall make settlement to the Producer for such sales at the times and in the manner hereinbefore provided in the next preceding paragraph.(a).

ABNORMAL MARKET CONDITIONS

11. In the event of abnormal market conditions existing at any time in the Southern Alberta producing fields or in the marketing area regularly

served by the Distributor, due to price cutting or similar causes or in the event that the established field price is temporarily out of line or if crude oil for the Refiner's requirements can be purchased in the open market at less than the prevailing field price, then, in any of such events, adjustments may be made as to price, or production to be taken for temporary periods as may be reasonable in the circumstances and in default of agreement between the parties as may be fixed by arbitration as hereinafter provided.

ABSORPTION PLANT AT THE WELL

12. In the event of the Refiner or the Distributor desiring to erect an absorption plant for the purpose of processing the Producer's gas production at or near the said Well the Producer shall not object thereto and shall as the holder of the said petroleum and natural gas lease and as the lessee of a portion of the surface rights, so far as within its legal right and power, co-operate and permit the erection of such plant provided, and to the extent, that the same will not interfere with the operation of the said Well and the works of the Producer thereto pertaining. In the event of the Refiner or the Distributor using a portion of the lands comprised in the Producer's lease of the surface rights the Refiner and the Distributor shall pay the Producer a fair proportion of the rental payable by the Producer for such surface rights.

GAS PRODUCTION

13. ~~Notwithstanding~~ that the foregoing provisions of this Agreement contemplate the inclusion of the gas or gasoline or naphtha in gaseous form in the term "Production of the said Well" to be marketed by the Distributor it is understood and agreed that if the said parties are unable within the period of six(6) months from the date when the said Well is first brought into production to make a definite and bona fide agreement with the Producer and the Trustee to

take and pay for continuously the entire marketable gas production from the said Well, the Producer and/or the Trustee may make such other contract or arrangement with any other party for the sale and disposal of such gas production and thereafter such gas production shall not be deemed to be included in or covered by this Agreement; Provided, however, before any such agreement with any third party is finally executed or consummated the Distributor shall be given ten (10) days' notice thereof and shall have the right within such ten (10) day period to elect to execute an agreement to purchase and take such gas production on similar terms.

CANCELLATION

14. (a) The Producer and/or the Trustee shall be entitled to cancel or terminate this Agreement upon sixty (60) days' notice to the Refiner and the Distributor if for any continuous ninety (90) day period the Refiner and the Distributor together do not take delivery of, sell, market, and/or pay for, or cause to be paid for, the minimum production from the said well as hereinafter defined.

The term "minimum production" for the purpose of this clause shall, in relation to the said Well, be the established prorated percentage of production generally applied or adopted by the major refinery or purchasing companies, being the part of production of wells in the field of which they will take delivery from time to time.

(b) The Producer and/or the Trustee shall be entitled to cancel or terminate this Agreement upon five (5) days' notice to the Refiner and the Distributor in the event of any default in payment or the furnishing of true and accurate statements by the Refiner and/or the

Distributor continuing for a period of ten(10) days. The rights conferred by this paragraph (b) shall be in addition to, and shall not be taken to limit, any other remedy or right conferred by this Agreement or by law or statute.

ARBITRATION

15. Should any dispute or difference arise between the parties hereto as to the interpretation or the performance of this Agreement, including, without restricting the generality of the foregoing, any dispute or difference as to the payment or amount of payment for any production or part of production, such dispute or difference shall be settled by arbitration; either the Refiner or distributor shall forthwith appoint one arbitrator and the Producer a second and in the event of these two arbitrators failing to agree, the said two arbitrators shall thereupon forthwith appoint a third arbitrator and the decision of a majority of these arbitrators shall be final, conclusive and binding on all the parties hereto. Such arbitration shall be subject to the provisions of "The Arbitration Act" for the Province of Alberta, being chapter 98 of the Revised Statutes of Alberta 1922 and any Act or Acts amending the same or substituted therefor.

NOTICES

16. (a) Any notice to be given to the Producer or the Trustee hereunder shall be given at the office of the Trustee at the City of Calgary aforesaid.

(b) Any notice to be given to the Refiner or the Distributor hereunder shall be given at the office of the Distributor, corner 4th Street East and 9th Avenue, at Calgary, aforesaid, or at such other address in Calgary aforesaid as the Distributor may from time to time notify to the Trustee in writing as its main office adress in

Calgary.

(c) Notice may be given as aforesaid either by personal delivery at such address or by mailing in Calgary postage prepaid and any notice so mailed shall be deemed to have been received twenty-four (24) hours after mailing, Sundays and Dominion legal holidays excluded.

PUMPING EQUIPMENT

17. The Producer shall at its own cost and expense supply the necessary fuel and pumping equipment at or near the well to load or to deliver production to purchasers of production who take delivery thereof, at or near the well, other than through the pipe line.

SUBJECT TO CROWN LEASE AND SUBLEASE

18. This Agreement and everything herein contained, and the performance thereof, shall be deemed to be and is intended to be subject to and in accordance with the head lease from the Crown and the Sublease to the Producer and to all lawful and valid governmental acts, laws and regulations as to pro-ration or operation of the well, or conservation and similar matters and in the event of the terms and provisions hereof being validly interferred with or rendered impossible by reason of the foregoing, it is the intention of the parties hereto that this Agreement shall be adjusted and modified so as to comply with such acts, laws and regulations.

POSITION OF TRUSTEE

19. Wherever the term "Producer" is used throughout this Agreement the same shall be deemed to include the Trustee for the period of the continuance of the Turstee's possession of the said Well, pursuant to and in accordance with the Agreements dated the 25th day of September 1937 and the 21st day of February 1938 made between the Producer herein as the Company therein, of the

First Part, British Trans Canada Oils Limited, of the Second Part, one Harold G. Ralph, of the Third Part, and the Trustee herein, as the Trustee therein of the Fourth Part, which Agreements are referred to in the sixth paragraph of the Recitals to this Agreement and when the Trustee has delivered up possession of the said Well to the Producer pursuant to the terms of the said Agreements, the Trustee shall have no further interest in this Agreement or the performance thereof, except and to the extent that it may be interested by reason of the Agreement dated the 16th day of December, 1936, between the Producer herein, as the Company therein, of the First Part, and the Trustee herein, as the Trustee therein, of the Second Part, which Agreement is referred to in the fourth paragraph of the recitals to this Agreement, pursuant to which said Agreement the Trustee is entitled to receive and to be paid all theproceeds of production of the said Well and to enforce such payment and the right ot compel the performance of the said Agreement of the 16th day of December, 1936.

JOINT AND SEVERAL OBLIGATION OF REFINER AND DISTRIBUTOR

20. (a) The Refiner doth hereby guarantee and join with the Distributor jointly and severally in all covenants, agreements, conditions and obligations on the Distributor's part herein contained.

(b) The Distributor doth hereby guarantee and join with the Refiner jointly and severally in all covenants, agreements, conditions and obligations on the Refiner's part herein contained.

(c) Without in any way restricting the generality of the foregoing the Refiner and Distributor jointly and severally covenant, promise and agree to and with the Producer and the Trustee to pay and/or cause to be paid all moneys representing the sale price of all the

production of the said Well delivered hereunder.

(d) The Producer and the Trustee in dealing with either the Distributor or Refiner shall be entitled to, and may, grant extensions, take and give up security, accept compositions and otherwise deal with either the Distributor or the Refiner, without in any way prejudicing, limiting or affecting the guarantee or obligation of, or without consulting the other.

IN WITNESS WHEREOF the Parties of the First, Third and Fourth Parts, have caused their Corporate Seals to be hereunto affixed, attested by the hand or hands of the respective proper officers in that behalf and the Party of the Second Part has hereunto set his hand and seal, all as of the day and year first above written.

SUNBURST OIL COMPANY, LIMITED

____

________________________ (Seal)

SIGNED SEALED AND DELIVERED
by Leon L. Plotkins, on his
own behalf and on behalf of
Lion Refining Company, in the
Presence of:

____

LION REFINING COMPANY

____

LION OILS LIMITED

____

________________________ (Seal)

PRUDENTIAL TRUST COMPANY LIMITED

____

________________________ (Seal)

BRITISH TRANS CANADA OILS LIMITED, a Body Corporate, with head office at the City of Calgary, inthe Province of Alberta, and SUNBURST OIL COMPANY LIMITED, the Producer mentioned in the foregoing Agreement, DO HEREBY consent and agree to Prudential Trust Company Limited joining in and executing the hereinbefore mentioned Agreement and Sunburst Oil Company Limited and British Trans Canada Oils Limited, do acknowledge and agree that the said Trustee in executing the foregoing Agreement, shall be entitled to the benefit of the indemnity given to it, as contained inthe said Agreements dated the 25th day of September, 1937 and the 21st day of February, 1938 made between Sunburst Oil Company Limited, of the First Part, British Trans Canada Oils Limited, of the Second Part, one Harold C Ralph, of the Third Part, and the said Prudential Trust Company Limited, of the Fourth Part, and that the Trustee shall only be liable to account for any moneys actually received by it under or pursuant to the foregoing Agreement.

IN WITNESS WHEREOF British Trans Canada Oils Limited and Sunburst Oil Company Limited have caused their Corporate Seals to be hereunto affixed, attested by the hands of their respective proper officers in that behalf, this 31st day of March, 1938.

BRITISH TRANS CANADA OILS LIMITED.

____

____

SUNBURST OIL COMPANY LIMITED

____

____

CANADA)
PROVINCE OF ALBERTA)
TO WIT:)

I, of the City of Calgary, in the Province of Alberta, make oath and say:-

1. That I was personally present and did see LEON L. PLOTKINS named in the within instrument, who is personally known to me to be the person named therein, duly sign and execute the same in his personal capacity and on behalf of Lion Refining Company, for the purposes named therein.

2. That the same was executed at the City of Calgary, in the Province of Alberta, and that I am the subscribing witness thereto.

3. That I know the said LEON L. PLOTKINS and he is in my belief of the full age of twenty-one years.

SWORN to at the City of Calgary,)
in the Province of Alberta, this)
day of A.D.)
1938.)

BEFORE ME:

A Commissioner for Oaths in and for the
Province of Alberta.

EXHIBIT 124

815 B. Centre St.

January 10th, 1938.

Imperial Oil Company Limited,
CALGARY.

Gentlemen:

I am just completing a small plant at Red Deer and will be in the market for approximately two hundred (200) barrels a day on or about March 15th, 1938. I should be pleased to be advised whether or not you can supply me with crude oil and if so what your price will be F.O.B. Calgary and F.O.B. Red Deer.

Yours truly,

. . . .

EXHIBIT 125

815 B. Centre St.

January 10th, 1938.

The British American Oil Co.
CALGARY.

Gentlemen:

I am just completing a small plant at Red Deer and will be in the market for approximately two hundred (200) barrels a day on or about March 15th, 1938. I should be pleased to be advised whether or not you can supply me with crude oil and if so what your price will be f.o.b. Calgary and f.o.b. Red Deer.

Yours truly,

PH:RM

EXHIBIT 126

The BRITISH AMERICAN OIL COMPANY Limited

209 - 6th Avenue West,
CALGARY, ALBERTA.

Feb. 15, 1938.

P. L. Hyde, Esq.,
815B - Centre Street,
CALGARY, ALBERTA.

Dear Sir:

Referring to your letter of January 10th, I have received a reply from my Head Office that crude can be supplied at the terminus of the pipelines of the Imperial Oil Company, or their loading racks, at a cost field price, pipeline charges, storage and loading charges, and upon satisfactory arrangements for payment of same.

I am not altogether familiar with the facilities for loading into trucks, but no doubt tank cars would be the most convenient method of loading for transportation.

Yours very truly,
"G. E. Watt"
Production Department.

G. E. Watt/JG.

EXHIBIT 127

815 B. Centre St.

February 16th, 1938.

Mr. G. E. Watt,
C/O British American Oil Co.,
209 - 6th Avenue West,
CALGARY.

Dear Mr. Watt:

I have for acknowledgment yours of yesterday's date with reference to a supply of crude oil for my plant at Red Deer. I wish to thank you for the information contained therein, and appreciate very much the consideration your Company have seen fit to give me in this matter.

Yours very truly,

PH:RM

J. FRAWLEY

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V.10

ALBERTA LEGISLATURE LIBRARY
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The Province of Alberta

IN THE MATTER OF THE PUBLIC
INQUIRIES ACT

—and—

IN THE MATTER OF a Commission, dated the
12th day of October, A.D. 1938, to inquire
into matters connected with Petroleum
and Petroleum Products

Commissioners:

The Honourable MR. JUSTICE McGILLIVRAY
(*Chairman*)

—and—

L. R. LIPSETT, ESQ.

Session:

CALGARY, Alberta EXHIBITS

VOLUME 10

Exhibits 128 to 162 Inclusive

BOX. 84

EXHIBIT 128

THE PETROLEUM AND NATURAL GAS CONSERVATION BOARD

List of Turner Valley Oil Wells classified as to names of purchasers of production under contract.

Royalite Oil Company Limited Contracts:

Advance 5A

Commoil 1 & 2
Consolidated 1
Coronation 1

Davies 2
Davies 4

Firestone 1
Foundation 1
Frontier 1

Globe 1
Granville 1

Monarch 1

National 2

Prairie 1

Richwell 1
Royal Canadian 1
Royal Canadian 2
Royalite 28
Royalite 29
Royalite 30
Royalite 31
Royalite 32
Royalite 33
Royalite 34

Spy Hill 1
Sterling Pacific 3
Sterling Pacific 4
Sterling Pacific 5
Sterling Pacific 6
Sundance 1
Sunset 1
Sunset 2

Westflank 1
Westflank 2
Westflank 3
West Turner 1
West Turner 2
West Turner 3

York 1

British American Oil Company Limited contracts:

B.& B. 1
Barsac 1
Brown 1
Brown 2
Brown 4
Brown 5 (Selling production to without contract)
Davies 1

Four Star 1

Model 1
Model 2
Model-Spooner 1

Producers Crude 1 (Selling production to without contract)
Royal Crest 1

Share 1

Three Point 1
Turner Valley Royalties 1

United 5

Vulcan Brown 1

Westside 1

Gas and Oil Products Limited contracts:

Mercury Royalties 1 (Associate company to Gas and Oil Products Limited) (Selling Production to without contract)

Model Spooner 2 (Associate Company to Gas and Oil Products Limited) (Selling Production to without contract)

Lion Oils Limited contract:

Sunburst 1

Wells not contracted :	Selling Production to:
National 1	Various purchasers.

....

EXHIBIT 129

Telegram British American Oil Company Toronto,
to E. L. Harvie, Barrister, Calgary,
as set out on Page 3384 of the record 3385

. . . .

EXHIBIT 130

A publication entitled as follows: "A Digest of Pipe Line Rates, Crude Petroleum Oil on file with the Interstate Commerce Commission, and compiled by the National Petroleum Association 3427

EXHIBIT 131

Three telegrams passing between the Toronto Office of the B.A. Oil Co., and Mr. Eric Harvie, Solicitor, in reference to Toronto Pipe Line Company. And extended in full in Record (See Page 3494) 3495

EXHIBIT 132

MEMORANDUM OF AGREEMENT made and entered into the day of , A. D., 193..

BETWEEN:

A Body Corporate having its Head Office at the City of ,in the Province of ., hereinafter called the "Vendor"

OF THE FIRST PART

- and -

THE BRITISH AMERICAN OIL COMPANY, LIMITED, a Body Corporate having its Head Office at the City of Toronto, in the Province,of Ontario, and carrying on business in the City of Calgary, hereinafter called the "Purchaser".

OF THE SECOND PART

CRUDE OIL AND NAPTHA AGREEMENT.

WHEREAS the Vendor represents that it owns and/or controls the Petroleum and Natural Gas Rights in and under:-

AND WHEREAS the Vendor guarantees and warrants that it has the right to sell the said oils and has agreed to sell to the Purchaser all

the liquid Petroleum (hereinafter referred to as "oil" whether in the form of "crude oil" or "crude naphtha" or other form) recovered by the Vendor from the said lands on the terms herein provided.

WITNESSETH AS FOLLOWS:

1. The Vendor covenants and agrees to sell to the Purchaser and the Purchaser agrees to purchase from the Vendor, except as hereinafter otherwise provided, all such oil produced from the above described lands from the date production is from time to time obtained and for so long as any such oil in commercial quantities is produced therefrom, the Purchaser to take delivery of the said oil from the Vendor's tankage at the place of production after measurements by the representatives of the Vendor and the Purchaser have been made, which oil, when so measured, shall be subject to a reduction of two (one) per cent (2 (1%)) representing pipe line loss. PROVIDED the Purchaser shall not be required to take deliveries in less than tank lots of two hundred (200) barrels, and the Vendor shall supply the necessary pumping equipment and fuel therefor. PROVIDED FURTHER that this Agreement shall not apply to any royalty oil payable to the Lessor under the hereinbefore described leases and to any royalty oil payable to any predecessor in title of the Vendor under its Sub-lease of the said lands if such royalty oil is taken in kind by the Lessor or predecessor in title under the terms of the said Lease or Sub-lease.

2. All oil delivered hereunder shall be heated by the Vendor to a minimum of thirty-five degrees (35°) Fahrenheit at time of delivery if required by the Purchaser. The Vendor will cause all such oil production to be freed of all water and other foreign substance (limestone, etc.) and reduced to ten pounds (10) vapor pressure, and when so prepared and treated, the Vendor shall notify the Purchaser who shall then take delivery thereof.

3. The Vendor hereby covenants and agrees that it will not during the period as hereinbefore defined sell or otherwise dispose of to any person, firm or corporation other than the Purchaser any of the said oil produced from the said property, except such as may be released as hereinafter provided.

4. The Vendor shall furnish to the Purchaser division orders showing what share of such oil is payable to any party entitled to royalty oil or other share of production, and the Purchaser may account directly to such parties for same.

5. The Purchaser covenants and agrees to pay to the Vendor for such oil at the current market price prevailing at the field for a like product at the place and time of delivery and subject to the terms of this contract, on the same terms and conditions, such payment to be made not later than the Twentieth of the month following that on which such production is received.

6. The Purchaser further covenants and agrees to accept all said oil produced by the Vendor and delivered in accordance with the provisions of this Agreement from the said Lease for the period as hereinbefore defined. PROVIDED that in the event there should be available to the Purchaser from the Turner Valley Field any such oil in quantities in excess of the Purchaser's economic market requirements from the said Field, and it should consider it advisable to curtail its purchases therefrom, of which facts the Purchaser shall be the sole judge, it shall not be necessary for the Purchaser to accept under this contract all such oil the Vendor is able to deliver. In such event the Purchaser may make the required reduction in quantity of such oil to be purchased hereunder, subject to the following terms and conditions, namely:

(a) The Purchaser agrees to take, in the first instance, a minimum

of two hundred and fifty (250) barrels or fifty (50%) per cent, whichever is the greater, of the available and/or allowable production of the well or wells on the said property provided that for the period of the first sixty (60) days after production and in order to allow the Purchaser an opportunity to arrange for and construct necessary storage and transportation facilities, it will not be required to accept an excess of three hundred (300) barrels per day.

(b) At any time, including the said sixty (60) day period, the Purchaser may notify the Vendor of the maximum daily amount it is prepared to accept, which amount shall become effective thirty(30) days after date of such notice; PROVIDED, however, the said notice shall become effective immediately in case general proration is from time to time applied in the said Field.

(c) In the event that the Purchaser at any time by notice or notices is taking either an amount less than fifty per cent (50%) of the available and/or allowable production of the well or wells, or one hundred (100) barrels per day, whichever is the greater, the Vendor is free to sell elsewhere any excess over that agreed to be taken by the Purchaser, provided such excess shall not be sold at less than said current field price.

(d) The Purchaser may from time to time further reduce the amount to be agreed to be taken on similar notice or notices, and in the event that a curtailment has been put in effect as above provided and the Vendor has not disposed or agreed to dispose of the production thereby released or any part thereof, the Purchaser may by notice served on the Vendor increase the amount of production that it will accept to the amount that then may

be available for delivery or any part thereof, and such increased deliveries shall commence thirty (30) days after the serving of such notice or notices, or such earlier date as may be mutually agreed upon, and thereupon the new amount shall be the amount agreed to be accepted and delivered hereunder until otherwise curtailed or increased from time to time as herein provided.

(e) The current percentage of reduction in the deliveries of like products which may be made by the Purchaser in the case of the Vendor herein shall be not more than the percentage of reductions made in the case of all Producers supplying such oil to the Purchaser from the said field under contracts with the Purchaser made on or after the date hereof, and the Purchaser shall use its best efforts to make such reductions on a basis not in excess of the proration generally applied in the said field.

(f) For the purpose of this contract, the Turner Valley Field shall consist of Sections , in Township ,Range , West of the Meridian, in the Province of Alberta, and such adjacent areas that may from time to time be considered as a common drainage area and defined by the said Purchaser as forming part of the said Field.

7. This contract is subject to terms of the said Petroleum Leases and to all Governmental Acts and/or Regulations covering proration, conservation and such like matters, and the terms hereof shall be altered and adjusted to comply therewith, and particularly where any minimum production required to be taken under this contract exceeds the allowable production under such Acts and/or regulations such minimum production shall be reduced to the allowable production.

8. A barrel of crude oil under this Agreement is defined as being thirty-five (35) Imperial gallons.

9. It is understood and agreed in case of adverse claim of title to the land from which such oil may be produced, or adverse claim of title to any oil sold and purchased in pursuance of this agreement, the Purchaser may retain such part of the purchase price of such oil as it may deem necessary to cover any adverse claim as aforesaid which may be retained by the Purchaser until such adverse claim is fully settled and determined.

10. It is further understood and agreed that this contract, shall extend to and cover all crude oil which the Vendor owns and/or is, or may be entitled to dispose of, and produced and saved, during the terms of this contract from the rights covered hereunder, and shall extend to the heirs, successors and assigns of the parties hereto and each of them.

11. Notwithstanding anything herein elsewhere contained the Purchaser shall not be entitled to receive nor to excercise any of its rights under this contract except with respect to the crude oil and naphtha if any, to be obtained from the first well drilled upon the lands hereinbefore described to commercial production, or five hundred (500) feet in the lime, or to the top of the Black lime, whichever event should first happen.

IN WITNESS WHEREOF the Parties hereto have hereunto affixed their respective corporate seals, attested by the signatures of their proper officers in that behalf duly authorized, the day and year first above written.

SIGNED, SEALED AND DELIVERED)
in the presence of:)

____

Per______________________
President.

Per______________________
Secretary.

THE BRITISH AMERICAN OIL COMPANY
LIMITED

Per______________________
President.

Per______________________
Secretary.

Per______________

....

EXHIBIT 133

February 2, 1939.

Mr. J. H. McLeod, Manager,
Royalite Oil Company Ltd.,
606 - 2nd Street West,
CALGARY, Alberta.

Dear Mr. McLeod:-

Further to our various letters in respect to a direct connection with your main trunk pipe line, and in particular our formal application to your company for permission to connect into your pipe line at the point closest to our refinery with a suitable line leading to our storage tanks, and further to our recent conversation between the writer and yourself. We again, on your request, make application for such a connection.

We also would ask that a formal contract outlining the rates and conditions of transportation, storage, handling, and delivery acceptable to both parties be given to us.

EXHIBIT 133(cont'd)

In view of the fact that based on our last year's thruput we will be purchasing and putting into your pipe line approximately 200,000 barrels of crude for the year 1939, we feel that we should not be called upon to bear the expense of this direct pipe line connection , and as you know, it is not customary for pipe lines to expect the refineries to put in the lines, especially where it is such a short distance.

We are quite prepared to facilitate deliveries of crude to our refinery by provinding tankage that will make it possible to deliver to us in respectable quantities.

Your Mr. Coultis expressed the opinion to the Royal Commission now sitting that in order to cut into the line and give us this connection, that it would be necessary to cut the line, put in a block valve, and another "T" connection; and this would weaken the line at that point. While I do not presume to tell your company how this connection should be made, I do wish to correct the impression given to the Commission and to inform you that saddles are available that will effectively provide a 3" "T" connection that will not weaken the line at all.

With regards to the block valve, this is in our opinion not necessary as in practice you would not turn in all the trunk line flow into our comparatively small tanks and there is sufficient pressure at that point in the line that if it is assisted by holding the valve at the end of the line partly closed, it will create sufficient back pressure and cause part of the trunk line volume of oil to flow into our tank simultaneously with the balance of the oil flowing into the Royalite terminal tanks.

With the installation suggested, it would not be necessary to put in a 6" lateral, but a 3" line would be ample for our needs for all times and the cost would be comparatively small.

with a 3" line, the time factor and the cost of delivery and gaging, would be reduced to a minimum and certainly would not be as much as under the present arrangement.

The necessary supervision and periodic attention to the connection would be taken care of by your regular line walker who, we understand, makes periodic visits along the entire line, and this would not cause your company any extra expense beyond the ordinary maintenance that such a connection and line would normally require, and we are prepared to assist your man at any time in inspecting the line and connections.

In view of the fact that it usually takes considerable time in obtaining a decision from your company in matters such as this, we would ask that you expedite your usual procedure and advise us definitely as to your decision in the matters requested in the shortest possible time.

Yours very truly,

LION OILS LIMITED,

per
L. L. Plotkins,
General Manager.

LLP:AO

PS. The formal application referred to in the first paragraph of this letter is dated January 11, 1938.

EXHIBIT 134

ROYALITE OIL COMPANY, LIMITED

DETAILS OF

PHYSICAL CAPITAL BUDGET

YEAR 1939

PIPE LINE DIVISION

OIL GATHERING AND LATERAL LINES

Extension of Line No. 12-B from Southwest Pete No. 1 northward to Lowery Pete No.1 - 1¼ miles 4" pipe	9,400.00
2" lateral from British Colonial Well No.1 to tie to West Turner lateral - 1800' of 2" pipe	1,100.00
2" lateral from P.& H. Alco Well No. 1 to tie to West Turner lateral - 2500' of 2" pipe	1,500.00
2" lateral from Scottish Pete No.1 Well to tie to Main Gathering Line - 300' of 2" pipe	200.00
2" lateral from Vantage No.1 Well to tie to Royalite No. 30 lateral - 1500' of 2" pipe	900.00
2" lateral from Freehold No.7 to tie to Davies No.4 lateral - 2500' of 2" pipe	1,500.00
4" lateral from centre of Section 5, 19-2-5 taking oil from Royalite No.53 and 34, Vulcan-Brown and central battery in L.S.D.5 of same section, servicing Royalite 57 and future wells in this area, to central pump location on Main Oil Gathering Lines - 3000' of 4" pipe	4,300.00
Installation of 1 - Braun Oil Heater including fittings to be used as a booster heater on the long Main Gathering Line between the proposed No.4 Pump Station and the Main Trunk Line Pump Station to keep the temperature of the oil to the required degree.	2,500.00

EXHIBIT 134 cont'd

Extension of Line No.13 to proposed site of No.4 Pump Station near Royalite No. 32 well - 2$\frac{3}{4}$ miles of 4" pipe	20,800.00
2" lateral from separator battery - L.S.D. 4, Section 8, 19-2-5 to tie to Main Gathering Line 1320' of 2" pipe	800.00
2" lateral from separator battery - L.S.D.16, Section 7, 19-2-5 to tie to Main Gathering Line 1320' of 2" pipe	800.00
2" lateral from separator L.S.D. 7, Section 22, 20-3-5 to tie to Model lateral - 2640' of 2" pipe	1,600.00
3" lateral from separator battery L.S.D.4, Section 1, 20-3-5 to tie to Mains near No. 1 Tank Farm 9000' of 3" pipe	8,100.00
3" laterals to probable new independent locations 11,120' of 3" pipe	9,900.00
4" lateral from separator battery on L.S.D.1, Section 17, 18-2-5 and L.S.D.16, Section 8, 18-2-5 to No.4 Pump Station - 3500' of 4" pipe	5,000.00
4" laterals to probable new independent locations 19,900' of 4" pipe	29,400.00
	97,800.00

TANKAGE

Purchase and install at No. 4 Pumping Station one 10,000 barrel tank fully equipped with vapor vents, foam chutes, heating coils, valves, swing suction, firewalls, etc.	12,500.00
Purchase and install one 5,000 barrel tank fully equipped with vapor vents, foam chutes, heating coils, valves, swing suction, firewalls, etc. required if a central point fed by gravity is established to pump into the Gathering Mains in the vicinity of the Southwest Pete section	8,200.00

EXHIBIT 134 cont'd

Purchase and install one 5,000 barrel tank fully equipped with vapor vents, foam chutes, heating coils, valves, swing suction, firewalls, etc. This will be used for replacement, augmenting present storage or for a further central gravity gathering point dependent on development	8,200.00
One 10,000 barrel pressure storage tank at Pipe Line Terminal - Calgary	20,000.00
	48,900.00

PUMPING EQUIPMENT

No. 4 Pumping Station to be located South of the Highwood River	20,000.00
Field Pumping Equipment to be installed as required, dependent on development	40,600.00
	60,600.00

AUTOMOTIVE EQUIPMENT

Replacements	5,100.00	
New Units	7,300.00	12,400.00

GENERAL

Installation of Racks in Warehouse Yard	600.00
Erection of 1 - 3-stall garage for Caterpillar tractor and portable welding machines	1,200.00
Purchase of small tools and equipment	2,600.00
Purchase of portable Compressor for testing lines and for supplying air to Air Tools throughout the Field	3,600.00
Purchase of one Air Motor for driving Air Tools throughout the Field	300.00

EXHIBIT 134 cont'd

8.

Replacement and purchase of Engineering and Drafting Equipment	500.00
Purchase of six Foxboro Recording Pressure Gauges and installation on No. 2 and 3 Trunk Lines	600.00
Extension of Warehouse building to provide additional space for stocks of repair parts, reconditioned equipment and new material	3,000.00
Office furniture and equipment for Calgary and Turner Valley Offices as required	1,500.00
Changes at the Calgary end of the Turner Valley-Calgary Trunk Delivery Lines which may become necessary through changes in the handling of oil to different refineries	3,000.00
Addition to Office Building at Turner Valley to accommodate increase in Accounting Staff and addition to vault. The building in the office group now being used as residence might be utilized in lieu of this addition with a new money outlay of $1,900.00	1,900.00
	18,000.00
CONTINGENCY - To provide for expenditures unforeseen at this time	25,000.00
TOTAL	$263,500.00

EXHIBIT 135

ROYALITE OIL COMPANY LIMITED

PIPE LINE DEPARTMENT

Statement showing Total Investment, Net Profit and Rate of Return as set out on Exhibit A. of Court Exhibit 100 but after providing for 10% salvage value in Fixed Assets when calculating amortization, instead of amortizing 100% of total cash investment; on the basis of amortization to December 31, 1946 (8 years from January 1, 1939)

	Total Investment	Net Profit		Rate of Return	
December 31, 1931	$685,762.20	$ 54,587.38		7.93%	
December 31, 1932	615,499.07	60,284.59		9.79%	
December 31, 1933	523,599.95	86,792.75		16.58%	
December 31, 1934	487,893.15	118,589.96		24.31%	
December 31, 1935	457,916.59	102,148.53		22.31%	
December 31, 1936	488,978.57	77,009.51		15.75%	
December 31, 1937	737,823.73	299,968.12		40.66%	
September 30, 1938	1,195,321.33	374,741.17	x	31.35%	for nine months
			x	41.80%	equivalent per annum
Average	649,099.30	151,473.78		23.34%	

EXHIBIT 136

ROYALITE OIL COMPANY LIMITED

PIPE LINE DEPARTMENT

Statement of cost of handling, gathering and transporting oil in cents per barrel, including varying rates of return on invested capital based on the nine months period ending September 30, 1938, with amortization of investment by December 31, 1946 after allowing for 10% salvage value of Fixed Assets

Invested Capital	$1,195,321.33
Cost per barrel	6.35 cents

Cost per barrel after provinding for income tax and a return on the invested capital at the rates following:

	Cents
10%	8.86
12½%	9.49
15%	10.12
17½%	10.75
20%	11.38

....

EXHIBIT 137 3692

Statement produced by the witness A. Maw, showing proportion of Royalite Oil Company Assets held for the account of the Pipeline Division as of September 30, 1938.

....

EXHIBIT 138 3751

Booklet entitled "Uniform System of Accounts for Pipelines" prescribed by The Interstate Commerce Commission.

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EXHIBIT 139 3754

Book entitled "Financial Examinations" by F. W. Thornton.

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		Page in Record
EXHIBIT "140" -	Chart No. 1, showing Average Value of Turner Valley crude oil at the well for refining at Calgary and Regina Refineries, in competition with Cutbank crude, well price, dollar per barrel for Calgary; Cutbank crude, well price, $.80 per barrel for Regina; Illinois crude well price, $1.15 per barrel for Sarnia; using a Turner Valley well price of $1.5016 for 48 gravity crude refined at Calgary, showing in territories colored red, green, and yellow the areas available to be served from Calgary, Regina and Sarnia, respectively under the above conditions.	3805.
EXHIBIT "141" -	Chart No. 2, showing Average Value of Turner Valley crude oil at the well for refining at Calgary and Regina Refineries, in competition with Cutbank crude well price price $1.00 per barrel for Calgary; Cutbank crude well price $.90 per barrel for Regina; Illinois crude well price $1.15 per barrel for Sarnia, using a Turner Valley well price of $1.5016 for 48 gravity crude refined at Calgary, showing in territories colored red, green and yellow the areas available to be served from Calgary, Regina and Sarnia, respectively under the above conditions.	3806.
EXHIBIT "142" -	Chart No. 3, showing average value of Turner Valley crude oil at the well, for refining at Calgary and Regina refineries, in competition with Cutbank crude well price $1.00 per barrel for Calgary; Cutbank crude well price $1.00 per barrel for Regina; Illinois crude well price $1.15 cents per barrel for Sarnia, using a Turner Valley well price of $1.5016 for 48 gravity crude refined at Calgary, showing in territories colored red, green and yellow the areas available to be served from Calgary, Regina and Sarnia, respectively under the above conditions.	3806.
EXHIBIT "143" -	Oil Weekly, January 30th, 1939. Particularly see pages 97,98,102, 52	3811.
EXHIBIT "144" -	Issue of Oil and Gas Journal for January 26th, 1938. See particularly pages 205, 139.	3812.
EXHIBIT "145" -	National Petroleum News dated January 25th, 1939. See particularly page 17	3814.

EXHIBIT 146

SARNIA REFINERY

ILLINOIS CRUDE AT $1.15 PER BARREL WELL PRICE VS TURNER VALLEY CRUDE TO SUPPLY THE PROPORTION OF THE VARIOUS PRODUCTS ESTIMATED FOR YEAR 1939

	Chart No.'s 1 & 4		Chart No.'s 2 & 5		Chart No.'s 3 & 6
Well Price of Illinois Crude	$ 1.1500		$ 1.1500		$ 1.1500
Buying	.0500		.0500		.0500
Gathering and Pipeage	.3410		.3410		.3410
Excise 3%	.0360		.0360		.0360
Receiving, Storing and Handling	.0017		.0017		.0017
Cost of 1 Bbl. of Illinois Crude at Sarnia	$ 1.5787		$ 1.5787		$ 1.5787
Less Value of additional Fuel Oil and Coke produced from Illinois Crude compared with production from 45 Grav.Turner Valley Crude at Regina 0.067 Bbl. of Fuel Oil and Coke @ 1.146	.0768		.0768		.0768
	$ 1.5019		$ 1.5019		$ 1.5019
Less-Freight Saving supplying Manitoba Territory from Sarnia vs Regina	.1427		.1182		.0912
Value of 0.887 Bbl. 45 Grav.Turner Valley Crude and 0.039 Bbl. Absorption	$ 1.3592		$ 1.3837		$ 1.4107
Deduct- 0.039 Bbl. of Absorption	.1809		.1809		.1809
Value of 0.887 Bbl. 45 Grav.Turner Valley Crude	$ 1.1783		$ 1.2028		$ 1.2298
" " 1. " 45 Grav.Turner Valley Crude $ 1.1783 ÷ 0.887 Bbl.	1.3297	$ 1.2028 ÷ 0.887 Bbl.	$ 1.3564	$ 1.2298 ÷ 0.887 Bbl.	$ 1.3860
Less-Additional Chemicals for Treating	.0274		.0274		.0274
-Additional Ethyl Lead required	.0367		.0367		.0367
Value of 1 Bbl. of 45 Grav.Turner Valley Crude at Regina	$ 1.2656		$ 1.2923		$ 1.3219
Less-Freight Calgary to Regina $ .5320 Loading at Calgary .0500 Pipeage and Gathering .1500	.7320		.7320		.7320
Value of 1 Bbl. 45 Grav.Turner Valley Crude at the Well	$ .5336		$ .5603		$ .5899
Equivalent Value of 48 Gravity (3 Degrees Gravity x 2¢)	$ .5936		$ .6203		$ .6499

3

EXHIBIT 147

REGINA REFINERY

CUT BANK CRUDE WITH A WELL PRICE OF $ .80 - .90 AND $1.00 VS TURNER VALLEY CRUDE TO SUPPLY THE PROPORTION OF THE VARIOUS PRODUCTS ESTIMATED FOR YEAR 1939

	Chart No.'s 1 & 4		Chart No.'s 2& 5		Chart No's. 3 & 6.
Well Price of 37 Grav.Cut Bank Crude	$ .8000		$ .9000		$ 1.0000
Gathering and Loading	.1250		.1250		.1250
Excise Tax 3%	.0240		.0270		.0300
Freight to Regina	.7056		.7056		.7056
Cost of 1 Barrel of Cut Bank Crude at Regina	$ 1.6546		$ 1.7576		$ 1.8606
Less Value of additional Fuel Oil produced from Cut Bank Crude compared with production from running 45 Grav.Turner Valley Crude plus Absorption Naphtha 0.154 Bbl. of Fuel Oil @ $ 1.0300	.1586		.1586		.1586
Value of 0.785 Bbl. of 45 Grav.Turner Valley Crude and 0.039 Bbl. of Absorption	$ 1.4960		$ 1.5990		$ 1.7020
Deduct 0.039 Bbl. of Absorption	1809		.1809		.1809
Value of 0.785 Bbl. of 45 Grav.Turner Valley Crude	$ 1.3151		$ 1.4181		$ 1.5211
Value of 1 Bbl. of 45 Grav.Turner Valley Crude $ 1.3151 ÷ 0.785 Bbls.	$ 1.6755	$ 1.4181 ÷ 0.785 Bbls.	$ 1.8062	$ 1.5211 ÷ 0.785 Bbls	$ 1.9378
Less-Additional Chemicals for Treating	.0208		.0208		.0208
" -Additional Ethyl Lead required	.0390		.0390		.0390
Value of 1 Bbl. of 45 Grav.Turner Valley Crude at Regina	$ 1.6157		$ 1.7464		$ 1.8780
Less-Freight Calgary to Regina $ .5320					
-Loading at Calgary .0500					
-Pipeage and Gathering .1500	.7320		.7320		.7320
Value of 1 Bbl. of 45 Grav.Turner Valley Crude at the Well	$ .8837		$ 1.0144		$ 1.1460
Equivalent Value of 48 Gravity (3 Degrees in Gravity x 2¢)	$ .9437		$ 1.0744		$ 1.2060

EXHIBIT 148

CALGARY REFINERY

CUT BANK CRUDE AT $1.00 PER BARREL WELL PRICE VS TURNER VALLEY CRUDE TO SUPPLY THE PROPORTION OF THE VARIOUS PRODUCTS ESTIMATED FOR YEAR 1939.

	Chart No.'s 1,2 & 3
Well price of 37 Grav.Cut Bank Crude	$ 1.0000
Pipeage and Loading at Coutts	.1850
Excise Tax 3%	.0300
Freight Coutts to Calgary	.4410
Cost of 1 Barrel of Cut Bank Crude at Calgary	$ 1.6560
Less Value of additional Fuel Oil produced from Cut Bank Crude compared with production from running 46 Grav.Turner Valley Crude 0.157 Bbl. of Fuel Oil @ $1.00	.1570
Value of 0.85 Bbl. of 46 Grav.Turner Valley Crude	$ 1.4990
Value of 1. " " " " " " " $ 1.4980 ÷ 0.85	$ 1.7633
Less-Additional Freight supplying products in Coutts Territory from Calgary	.0860
" -Additional Chemicals for treating	.0207
" -Additional Ethyl Lead required	.0447
Value of 1 Bbl. of 46 Grav.Turner Valley Crude at Calgary	$ 1.6116
Less - Pipeage and Gathering	.1500
Value of 1 Bbl. of 46 Grav.Turner Valley Crude at the Well	$ 1.4616
Equivalent Value of 48 Gravity (2 degrees in Gravity x 2¢)	$ 1.5016

		Page in Record.
EXHIBIT 149 -	Chart No. 4, showing average value of Turner Valley crude oil at the well for refining at Calgary and Regina Refineries, in competition with Cutbank crude well price $.80 per Bbl. for Regina; Illinois crude well price $1.15 per barrel for Sarnia, using a Turner Valley well price of $1.30 for 48 gravity crude refined at Calgary, showing in territories colored red, green and yellow the areas available to be served from Calgary, Regina and Sarnia, respectively under the above conditions.	3846.
EXHIBIT "150" -	Chart No. 5, showing average value of Turner Valley crude oil at the well for refining at Calgary and Regina Refineries, in competition with Cutbank crude well price $.90 per barrel for Regina; Illinois crude well price $1.15 per barrel for Sarnia, using a Turner Valley well price of $1.30 for 48 gravity crude refined at Calgary, showing in territories colored red, green and yellow the areas available to be served from Calgary, Regina and Sarnia, respectively under the above conditions.	3849.
EXHIBIT "151" -	Chart No. 6, showing average value of Turner Valley crude oil at the well for refining at Calgary and Regina Refineries, in competition with Cutbank crude well price $1.00 per barrel for Regina; Illinois crude well price $1.15 per barrel for Sarnia, using a Turner Valley well price of $1.30 for 48 gravity crude refined at Calgary, showing in territories colored red, green and yellow the areas available to be served from Calgary, Regina and Sarnia, respectively under the above conditions.	3850.
EXHIBIT "152" -	Details of physical capital budget of the Royalite Oil Company Limited, for the year 1937 for all departments.	3978.
EXHIBIT'153' -	Details of the physical capital budget of the Royalite Oil Company Limited, for the year 1938, for all departments.	3978.
EXHIBIT "154" -	Details of physical capital budget of the Royalite Oil Company Limited, for the year 1939, for all departments.	2978.

EXHIBIT 155

Page in record.

3980.

A FACTUAL MEMORANDUM

CONCERNING THE HISTORY OF THE INCORPORATION AND DEVELOPMENT OF

ROYALITE OIL COMPANY, LIMITED

13th DECEMBER, 1938

Exhibit "155" cont'd.

A FACTUAL MEMORANDUM
CONCERNING THE HISTORY OF THE INCORPORATION AND DEVELOPMENT OF ROYALITE OIL COMPANY, LIMITED

INCORPORATION

Royalite Oil Company, Limited was incorporated by Letters Patent issued at Ottawa by the Secretary of State of Canada on 18th January, 1921. The purpose for which the Company was formed was to acquire all the assets of Calgary Petroleum Products Limited, which had been formed in 1912, and to continue the development which had been commenced by that company in the Turner Valley of Alberta. It obtained its corporate name from the brand name of the coal oil, or kerosene, which Imperial Oil Limited markets throughout the Dominion.

EARLIER DEVELOPMENT

It is considered important at this time to include herein some of the earlier history of the Turner Valley, and it may be pertinent to record that the locality, flanked on either side by parallel ridges and extending in a South-Easterly direction from Section 9 of Township 21, Range 3, West 5th Meridian, to the base of the Longview Hill in Township 18, Range 2, West of the 5th Meridian, was known by that name many years prior to the drilling for petroleum and natural gas. It obtained its name from the late John Turner, who with his brother Robert Turner, had carried on the business of ranching, specializing in the breeding and raising of pure bred horses, and it seems at this writing a peculiar circumstance that their surnames should be perpetuated and used to-day to denote a much larger area than that comprising the original Turner Valley, when it is considered that neither of them at any time took an active interest in the subsequent oil development, and when many other names such as "Sheep River Gas and Oil Field",

"Black Diamond Field", Dingman Field" and possibly others were used at various times to denote the area.

About the year 1906 one, Michael Nicholas Stoos, came to the country from Montana with a covered wagon, horses and equipment to purchase and settle on ranching and farming lands, and while in the vicinity of the town of Okotoks he called upon William Stewart Herron, Esq., who at the time was engaged in farming operations Southwest of that town. Herron and Stoos went to the district to select land, and subsequently Stoos purchased the surface property comprising the East half of the North-West quarter of Section 6, Township 20, Range 2, West of the 5th Meridian, where Royalite's main plant area is situate, and its field offices are located, together with the West half of Section 7 of Township 20, Range 2, West 5th Meridian, which was later the sites of Royalite Wells 4,5 and 14 and he purchased in addition, the South half of Section 13, of Township 20, Range 3, West of the 5th Meridian, subsequently the sites of Royalite Wells 7,9, 12, 13 and 21. Shortly after settling on the lands he built the frame dwelling located immediately North of the warehouse, and presently occupied by one of the Company's employees.

The South fork of Sheep Creek flows through the North-West quarter of Section 6, and it had long been known that a natural gas seepage occurred on the bank of Sheep Creek in the area. In fact visitors to the locality would sometimes light the gas and do picnic cooking there, but it was not until early in the year 1911 that more than passing interest was taken in the occurrence. In that year Mayor Mitchell of Calgary, in company with Alderman J. G. Watson, visited there and placed a stake on the lands presently occupied by Royalite's No. 1 Natural Gasoline Plant, stating thereon that the sub-surface gas was reserved to the City of Calgary. These gentlemen did not make application for leases, perhaps because of the legal difficulties involved and because of the necessity of referring the matter

to the ratepayers of the City, but shortly thereafter Mr. Herron, who had for some time been interested, and had taken samples of the gas, which upon analysis by the chemist of the City of Calgary, showed the presence of condensable hydrocarbons, but who, until that time had not been financially able to develop the properties, sold certain of his farming and other lands, and on 5th September, 1911, he purchased all of the surface property which Stoos had acquired, and through the medium of himself, his wife, his adult daughter and Stoos, applications were made by him and on his behalf to the Crown and to the Canadian Pacific Railway for leases to the petroleum and natural gas contained in some 7,000 acres all in the Turner Valley. Mr. Herron then proceeded to form a Syndicate and soon after solicited the help of the late A. W. Dingman, Esq., for that purpose. Together they interviewed many of the well known people of the Calgary district and on the 26th July, 1912, Mr. Herron, by Agreement, sold 55/100ths of his interest in the lands to a Syndicate to consist of at least ten persons for the consideration of Twenty-Two Thousand Dollars, on condition that the purchasers agree to expend Fifty Thousand Dollars in developing the properties. This Syndicate, when formed, comprised the undermentioned persons:

Messrs. A. W. Dingman
W. H. McLaws, K.C.
R. B. Bennett, K. C.
A. Judson Sayre,
Sir James A. Lougheed,
T. J. S. Skinner,
William Pearce,
Col. A. W. Price-Jones,
Alfred E. Cross,
O. S. Chapin,
O. G. Devenish.

Shortly after the Syndicate was formed it was decided to incorporate as a Limited Liability Company. The name of Calgary Petroleum Products Limited was chosen and the company formed in the latter part of the year 1912. About the same time certain preparatory work was commenced towards the drilling of Calgary Petroleum Products No. 1 Well, sometimes incorrectly referred to as "Dingman No. 1 Well". Mr. Herron made the location, hauled the material and equipment

there and supervised the construction of the derrick, and in January 1913 actual drilling operations were commenced with the late William Elder in charge. These were continued until May of that year, when a flow of high gravity crude oil was encountered. Drilling operations were then suspended for a time and the oil was hauled in tank wagons and in drums to Calgary, and district for sale. Later in the same year it was decided to drill deeper, and in May 1914, at a depth of 3980', a flow of natural gas, estimated at more than one million cubic feet per day, was encountered, which after separation, produced a considerable volume of 58° gravity baume crude oil.

In the summer of 1914 drilling was commenced on Calgary Petroleum Products No. 2 Well, which was carried to a depth of 3175', when a flow of wet natural gas, estimated at more than 500,000 cubic feet per day was encountered.

At a later date an absorption plant was constructed for the extraction of natural gasoline from natural gas produced from Royalite Wells No. 1 and 2, and for some years a production of 2500 to 3000 gallons per day was obtained through the operation of the plant. This product was also hauled to Calgary and adjacent districts and sold, and while the revenue thus obtained enabled the company to maintain itself, it was insufficient to properly develop the acreage which it held. Notwithstanding this, preparations were made for further drilling, and on 11th September, 1919, Calgary Petroleum Products No. 3 Well was spudded. Shortly thereafter a disastrous fire occurred which completely destroyed the absorption plant, and operations had then to be suspended.

Some time later the Right Honourable R. B. Bennett, a substantial shareholder of the Company, sought the interest of the late A. M. McQueen and others of the Executive of Imperial Oil Limited, in the project, with the result that on 18th January, 1921, Royalite Oil Company Limited was incorporated. On 27th January, 1921 the assets of Calgary Petroleum Products Limited were sold to Alliance Trust

Company, acting on behalf of the Royalite Company. On 8th March, 1921 the Alliance Trust Company offered to sell the properties and assets to Royalite, which offer was accepted at a meeting of the provisional Directors of the Royalite Company held on that day.

OFFICERS AND DIRECTORS

The Provisional Directors and Incorporators of Royalite Oil Company, Limited were comprised of five of the members and juniors of the legal firm of Lougheed, Bennett and Company. These were Messrs. Alexander Hannah, K.C., Percy L. Sanford, George C. Crosby, Harold C. Johnston and Walter Kingsley Jull, and it was they who subscribed for the first five shares of the company on 8th January, 1921. They held office until 25th April, 1921, on which date a Special General Meeting of the Shareholders was held and at that meeting Messrs. William Pearce, Alfred E. Cross, Charles E. Taylor, Walker L. Taylor and Tronson J. Draper were elected as Directors of the Company. At a Meeting of the Directors held on thesame day the late Charles E. Taylor was elected President and Managing Director; Walker L. Taylor, was elected Vice-President; John Harlton McLeod was appointed Field Superintendant and Florence M. Smith was appointed Secretary and Treasurer of the Company. For convenience a complete list of the Officers and Directors, showing dates of office, is appended hereunder:

Chairmen of the Board:		From:	To:
Alexander M. McQueen	(Deceased)	8 April, 1926	5 July, 1933
C. Harrison Smith		13 July, 1933	Date

Presidents:	From:	To:
Charles E. Taylor (Deceased)	25 April,1921	- 1921
Alexander M. McQueen(Deceased)	15 April,1922	8 April,1926
Rt. Hon. R. B. Bennett, K.C., M.P.	8 April,1926	30 April,1930
John Harlton McLeod	30 April,1930	To Date

Vice-Presidents:		
Walker L. Taylor	25 April,1921	15 April,1922
John Harlton McLeod	15 April,1922	30 June ,1923
Tronson J. Draper	1 July ,1923	31 May ,1928
John Harlton McLeod	31 May ,1928	30 April,1930
Alexander Hannah, K.C.	30 April,1930	To Date
Sydney F. Heard	30 April,1937	"

Directors:		
William Pearce (Deceased)	25 April,1921	3 March,1930
Alfred E. Cross (Deceased)	25 April,1921	10 March,1932
Charles E. Taylor (Deceased)	25 April,1921	- 1921
Walker L. Taylor	25 April,1921	15 April,1922
Tronson J. Draper	25 April,1921	31 May,1928
Alexander M. McQueen (Deceased)	15 April,1922	5 July,1933
John H. McLeod	15 April,1922 31 May,1928	30 June,1923 To Date
Clarence M. Moore	26 June,1923	To Date
Rt. Hon. R. B. Bennett, K.C., M.P.	8 April,1926	30 April,1930
Alexander Hannah, K.C.	30 April,1930	To Date
William S. Herron	7 April,1932	To Date
C. Harrison Smith	13 July ,1933	To Date
Sydney F. Heard	30 April,1936	To Date

Secretary-Treasurers:	From:	To:
Miss Florence M. Smith	25 April,1921	30April,1930
B. E. Walton	30 April,1930	31 May,1931
Edward F. Howard	6 June , 1931	7 April,193
Thomas Edward Burns	7 April,1932	To Date

CAPITAL

In the Letters Patent dated 18th January, 1921, authorizing the Incorporation, the capital stock of the Company was fixed at One Million Dollars, divided into Forty Thousand shares of Twenty-Five Dollars each, but, subject to the increase of such capital stock, under the provisions of "The Companies Act" and "Amending Acts". Early in the year 1926, it was decided to apply for permission to change the capital structure of the Company and later on 6th May, 1926 Supplementary Letters Patent were issued by the Secretary of State of Canada authorizing the issuance of 400,000 shares, without nominal or par value, in exchange for 40,000 shares which had been issued. Thus the original number of shares was increased tenfold but the capital remained the same.

Later, as the development in the Turner Valley continued many expensive offset drilling obligations became necessary and to enable it to carry out its prodigious drilling, construction and operating programs, the Company was obliged to obtain advances from Imperial Oil Limited to meet its cash requirements, with the result that in the summer of 1929 it was indebted to that company in the amount of almost Three Million Dollars. It was then decided to apply for permission to increase the capital by the addition of 100,000 shares. Application was made and on 23rd September, 1929 Supplementary Letters Patent were issued authorizing an

increase in the capital of the company from 400,000 shares, without nominal or par value, to 500,000 shares, also without nominal or par value. It was provided in these Supplementary Letters Patent that the additional 100,000 shares which had thus been created were to be issued and allotted for a consideration not exceeding $30.00 per share, and this additional capital was then offered to each shareholder of the Company at that price on the basis of one share for every four shares held. The fractional and unapplied for shares were sold by tender at a price of $60.00 per share, and the amount realized over and above the authorized valuation of $30.00 was remitted pro rata to the holders of fractions of allotment, and to those shareholders who had not applied for additional rights. The capital of the Company was thus increased by $3,000,000.00, bringing the book value of capital stock issued at that time to $4,000,000.00, and the moneys thus obtained were used to repay the Imperial Co. the amounts which had been borrowed from it.

The succeeding years found many companies operating in the Turner Valley in an unsatisfactory position, both from the standpoint of finance and operation. Natural gas pressures had, in many cases, declined to a point where it was no longer profitable to operate the wells using the simpler separation methods, with the result that representatives of many of these companies offered to sell their leasehold and fee simple lands, their wells, properties and equipment. Royalite needed certain of these properties to conserve the gas which was being produced and burned as surplus at unprofitably operated wells and also to consolidate with its other holdings, and in 1933 it was decided to again make application for permission to increase the capital of the company by an additional 500,000 shares, each without nominal or par value, and to offer these new shares as consideration for the acquisition of the properties then offered. Thus on 27th June, 1933 Supplementary Letters Patent were issued at Ottawa, authorizing

an increase in the capital stock of the Company from 500,000 shares, without nominal or par value, to 1,000,000 shares also without nominal or par value. Out of the 500,000 additional shares thus created there has been issued to date 205,737 shares and the balance, 294,263 shares, remains in the Treasury as authorized but unissued capital.

It was provided in these Supplementary Letters Patent that the additional 500,000 shares which had thus been created should be issued and allotted at a consideration not exceeding $12.00 per share, and since then the following allotments have been made for properties and assets acquired:

Date:	No. of Shares:	Allotment Value:
Issued Previously...............	500,000	$4,000,000.00
1933		
July 10 - Royal Trust Company, In Trust for Minority Shareholders of the Mayland Oil Company Limited.....	40,000	480,000.00
Nov. 20 - Alberta Pacific Consolidated Oils Limited	2,800	33,600.00
1934		
Feb. 6 - Calmont Oils Limited	5,525	66,300.00
Feb. 6 - Alberta Pacific Consolidated Oils Ltd.	541	6,492.00
Feb. 6 - United Oils Limited	433	5,196.00
Feb. 28- McDougall Segur Oil Co. Ltd. & McDougall Segur Exploration Co. Ltd.	8,000	96,000.00
Mar. 28- London & Western Trusts Co. Ltd., in Trust for Shareholders of Sterling Pacific Oil Co.	37,000	444,000.00
Apr. 23- Northwest Company Limited	3,450	41,400.00
Apr. 23 -Imperial Oil Limited	24,000	288,000.00
Apr. 23- Commonwealth Petroleums Limited	6,000	72,000.00
May 14- Carl Ohlson	5,000	60,000.00

Date:	No. of shares:	Allotment Value:
1934 Continued:		
May 15 - Freehold Oil Corporation Limited	1,750	$ 21,000.00
May 15 - United Oils Limited	133	1,596.00
May 15 - Home Oil Company Limited	116	1,392.00
May 15 - British Dominion Oil and Development Corporation	2,800	33,600.00
July 31 - Okalta Oils Limited	12,800	153,600.00
Aug. 31 - McLeod Oil Company Limited	11,000	132,000.00
Nov. 8 - Home Oil Company Limited	466	5,592.00
Nov. 8 - United Oils Limited	533	6,396.00
Nov. 8 - Home Oil Company Limited	18,333	219,996.00
Nov. 8 - Imperial Oil Limited	1,667	20,004.00
Nov. 9 - Canada Southern Oil& Refining Co. Ltd.	1,200	14,400.00
Nov. 9 - Catherine Spooner	900	10,800.00
Nov. 9 - Catherine Spooner	500	6,000.00
1935		
May 23 - Spooner Oils Limited	8,300	99,600.00
May 23 - Hargal Oils Limited	1,000	12,000.00
May 23 - Imperial Oil Limited	300	3,600.00
May 23 - Canada Southern Oil & Refining Co. Ltd.	1,200	14,400.00
May 23 - Canada Southern Oil & Refining Co. Ltd.	1,800	21,600.00
1936		
July 6 - Director Oils Limited	3,000	36,000.00
Oct. 1 - Freehold Oil Corporation Limited	1,850	22,200.00
1937		
Jan. 30 - Trusts & Guarantee Company Limited, for Estate of George Myers	400	4,800.00

Date:		No. of Shares:	Allotment Values
1937 Continued:			
Mar. 1	- Marjon Oil Company Limited	230	$ 660.00
June 30	- Calgary & Edmontom Corporation Ltd.	55	660.00
Dec. 6	- R. B. Rushworth, et al	750	9,000.00
Dec. 1	- J. Fred Scott, et al	1,100	13,200.00
Dec. 7	- T. W. McKee and W. C. Fisher	750	9,000.00
		705,737	$6,468,844.00

SUBSIDIARY COMPANIES

DALHOUSIE OIL COMPANY LIMITED

Dalhousie Oil Company Limited was incorporated under the laws of the Dominion of Canada on 4th November, 1925, to acquire the properties and assets of Southern Alberta Oils, Limited; Southern Alberta Oil Company, Limited; Alberta Southern Oil Company Limited and Southern Alberta Refineries Limited. It was named by the Right Honourable, R. B. Bennett, in honour of the University which he had, in his student days, attended and from which he had graduated. Originally it was intended to incorporate the compnay under the name of Premier Oils Limited, the name "Premier" being the brand name of the first grade gasoline then marketed by Imperial Oil Limited throughout Canada, but upon investigation it was found that another company had been previously registered under that name.

In order to continue the development which had been commenced by certain of the Southern Alberta Companies, agreements dated 25th July, 1925, were entered

into between Dalhousie Oil Company Limited and Mr. R. B. Bennett, as Trustee, and the four companies before mentioned, and Imperial Oil Limited, whereby Imperial Oil Limited agreed to drill two wells, deepen two wells, provide certain equipment and to advance the sum of $25,000.00 for the consideration of 1,530,000 shares of the no par value common stock of Dalhousie Oil Company Limited. This briefly describes the transaction. Imperial Oil Limited subsequently assigned its interests in the said agreements to Royalite Oil Company Limited, together with its right to receive the 1,530,000 shares, or 51% of the issued capital of the company, and these shares are presently held by Royalite and registered in its name. Royalite completed the contract and accumulated the cost of same on its books which was $567,580.43.

Dalhousie Oil Company Limited was at 30th November, 1938, the lessee to the petroleum and natural gas within the following undermentioned lands:

Lessor:	Legal Description:	Acres:
Crown	Sec. 30, Township 19, Range 2, West 5th Meridian	640
Crown	W.½ Section 32, Township 19, Range 2, West 5th Meridian	320
Crown	W.½ Section 18, Township 20, Range 2, West 5th Meridian	320
C.P.R.	N.E.¼ Section 13, Township 20, Range 3, West 5th Meridian	160
		1440

Note: In addition to the foregoing it owns the undermentioned Surface Lands:

Legal Description:	Acreage:
Section 30, Twonship 19, Range 2, West 5th Meridian	640.00
N.½ and L.S.D. 4 and 5, Section 32, Township 19, Range 2, W.5th Meridian	399.00
S.W.¼ Section 18, Township 20, Range 2, West 5th Meridian	158.90
Part of E.½, Section 7, Township 20, Range 2, West 5th Meridian	238.10
Part of N.E.¼ of Section 12, Township 20, Range 3, West of 5th Mer.	150.00
N.E.¼ and L.S.D. 1 and 8, Section 13, Township 20, Range 3, W.5 Mer.	235.44
	1,821.44

A list of its wells is shown below:

Well No:	Date Completed:	Location:							
1	22 March, 1928	Section	18,	Township	20,	Range	2,	W.5 Mer.
5	27 February1928	"	30,	"	19,	"	2,	"
6	4 October,1928	"	13,	"	20,	"	3,	"
7	18 August, 1930	"	30,	"	19,	"	2,	"

Dalhousie Wells 2, 3, 4 and 8 were abandoned due in some instances to to drilling difficulties and also to unproductiveness.

The operations of the Dalhousie Company are presently carried out by Royalite Oil Company, Limited. It has no employees other than administrative, and the naptha and crude oil production from its wells is marketed through Royalite.

SUBSIDIARIES OF SUBSIDIARIES

Included among the assets of the Southern Alberta Oil Company Limited at the time of the sale to Dalhousie Oil Company Limited, was a certificate for 550,000 shares of the $1.00 par value common stock of a company known as Mid-West Oil Company Limited, which said Company was incorporated on 18th October, 1917 under the provisions of the Companies Ordinance of the Province of Alberta, primarily to acquire the assets and properties of the Western Pacific Oil Company Limited and the Northwestern Pacific Oil Company Limited.

At the time of incorporation, Mid-West Oil Company Limited was the lease holder of the Petroleum and Natural Gas Rights within the under-described lands:

	Acres
L.S.D. 14 of Section 12, Township 20, Range 3, West 5th Mer.	40
" 8 " 31, " 19, " 2, " "	40
" 6 " 31, " 19, " 2, " "	40
The South 20 acres of the S.W.¼ of Section 24, Township 20, Range 3, West 5th Mer.	20
The North 20 acres of the S.W. ¼ of Section 24, Township 20, Range 3, West 5th Mer.	20
	160

The properties in Section 24, Township 20, Range 3, were allowed to lapse, due to non-payment of rentals to the Crown.

Legal Subdivision 14 of Section 12 also reverted to the Crown for non-payment of rentals and non-fulfilment of drilling obligations and the North half was subsequently acquired by Illinois-Alberta Oil Company Limited and the South half by McDougall-Segur Oil Company Limited, and the said South half has since been purchased by Royalite from the McDougall-Segur Company.

Legal Subdivision 8 was held under sublease from O.B. Stockford, Esq., who subsequently sold his rights to Mr. R. B. Bennett, who in his turn assigned to Royalite.

To summarize the foregoing it will be seen that The Mid-West Petroleum Corporation Limited is presently the owner of the lease to the Petroleum and Natural Gas Rights in Legal Subdivision 6 of Section 31, Township 19, Range 2, and sublease from Royalite Oil Company to the petroluem and natural gas in Legal Subdivision 8 of the same Section;

At an Adjourned Extraordinary General Meeting of the Shareholders of Mid-West Oil Company Limited, held on 16th September, 1932, a resolution was passed authorizing the sale of all of the properties and assets of the Company to a Company to be formed, to be known as The Mid-West Petroleum Corporation Limited, the new Company to have a share capital of 1,000,000 shares, without nominal

or par value. This new Company was incorporated under the laws of t Province of Alberta by Certificate of Incorporation dated 15th October, 1932, but has been inactive since that time.

The 550,000 shares which Dalhousie Oil Company Limited held in Mid-West Oil Company Limited have been exchanged for an equal number of shares in the Mid-West Petroleum Corporation Limited, and therefor out of the total issued capital of 919,608 shares, Dalhousie is the owner of the controlling interest or 59.80%.

FORMER SUBSIDIARIES

Southern Lowery Oils Limited incorporated by Dominion Charter on 4th December 1929, and The Mayland Oil Company Limited incorporated by Alberta Charter on 28th January, 1928, were formerly subsidiaries of Royalite Oil Company Limited. The assets of the first-named company were purchased by Royalite as of 31st December, 1932, and those of the second named company were also purchased by Royalite as of 10th July, 1933. Both of these former Subsidiary Companies have subsequently been wound up.

PETROLEUM AND NATURAL GAS LANDS

All of the leashold, fee simple and optioned lands which the Company has the rught to develop for the production of petroleum and natural gas are located in the Turner Valley. These holdings comprise 10,190.13 acres, a complete last of which, showing Vendors, the date of acquisition and legal description, is given hereunder:

LEASED FROM THE CROWN

Purchased From:	Date Acquired:	Description:	Sec.	Twp.	Rg.	Mer.	Acres:
Calgary Petroleum Products	8- 3-21	West ½	29	19	2	5	320
		LSD 2-7	"	"	"	"	80
		[illegible].½ LSD 10	"	"	"	"	20
		All of	6	20	2	5	640
		East ½	12	20	3	5	320
		All of	14	20	3	5	640
		West ½	1	20	3	5	320
O.B. Stookford	20- 7-33	N½ LSD 7	31	19	2	5	20
		LSD 8	"	"	"	"	40
Alberta Pacific Consolidated	20-11-33	LSD 4 & 5	20	19	2	5	80
Calmont Oils Limited	6- 2-34	LSD 11	20	19	2	5	40
New McDougall-Segur Oil Co. Ltd. and	28- 2-34	LSD 11-12-13 & S½ LSD 14	12	20	3	5	139.13
McDougall-Segur Exploration		S.W.¼	12	20	3	5	161
Freehold Oil Corporation Ltd.	9- 5-34	N.W.¼ LSD 8	20	19	2	5	10
Wellington Oil & Gas Co.	25-5-34	N.W.¼ LSD 1	20	19	2	5	10
Okalta Oils Limited	28-6-34	S.½ LSD 8	1	20	3	5	20
		S.½ LSD 9	1	20	3	5	20
		LSD. 1-7	"	"	"	"	80
		N½ of N½ LSD 2	"	"	"	"	10
		LSD 9 and 16	36	19	3	5	80
W.S. Herron & McLeod Oil Co.	30-8-34	N½ LSD 10-16	1	20	3	5	40
		LSD 15	1	20	3	5	40
Home Oil Company Limited	15-5-34	W½ & SE¼ LSD 1	20	19	2	5	30
		W½ & SE¼ LSD 8	"	"	"	"	30
		LSD. 9 & 16	"	"	"	"	80
		LSD. 2 & 7	"	"	"	"	80
		W½ LSD 10	"	"	"	"	20
		LSD'S. 14 & 15	"	"	"	"	8[illegible]
Mayland Oil Company Limited	10-7-33	LSD 12-13	16	19	2	5	[illegible]

LEASED FROM THE CROWN, Continued

Purchased From:	Date Acquired:	Description:	Sec.	Twp.	Rg.	Mer.	Acres
Northwest Company Limited	12- 4-35	N½ & E¼ of S½					
		LSD 4	31	19	2	5	25
		LSD 5	"	"	"	"	40
		LSD 1-2-3	"	"	"	"	120
		S½ LSD 7	"	"	"	"	20
		LSD7-9-14-15	22	20	3	5	160
Canada Southern Oil & Ref. Co. Ltd.	9-11-34	S½ LSD 10	1	20	3	5	20
	23- 5-35	NE¼ LSD 9	1	20	3	5	10
	23- 5-35	SE¼ LSD 16	1	20	3	5	10
Hargal Oils Limited	23- 5-35	E½ LSD 10	20	19	2	5	20
Director Oils Limited	3- 7-36	LSD 16	28	18	2	5	40
		LSD 4	34	18	2	5	40
Marjon Oil Company Limited	1- 3-37	LSD 9	28	18	2	5	40
Connaught Syndicate	21-12-36	LSD 16	32	18	2	5	40
J. F. Scott, et al.	1-12-37	LSD 3	29	18	2	5	40
R. B. Rushworth, et al	6-12-37	LSD 5	29	18	2	5	40
Model Oils Limited	7-12-37	LSD 4	29	18	2	5	40
							4,235.13

LEASED FROM CANADIAN PACIFIC RAILWAY COMPANY

Calgary Petroleum Products	8-3-21	W½	7	20	2	5	320
		S½	13	20	3	5	320
C. L. Ohlson	2-5-34	S.E.¼	27	20	3	5	160
	5-2-37	S.W.¼ & N½	27	20	3	5	480
							1,280

LEASED FROM SECURITY ASSETS COMPANY LIMITED

Trusts & Guarantee Co.	1-8-25	N½	31	19	2	5	320
	30-1-37	½ interest in LSD 13	21	18	2	5	40
							360

LEASED FROM CALGARY AND EDMONTON CORPORATION LIMITED

Southern Lowery Oils Limited	23-12-32	W½	9	19	2	5	320
		NE¼	"	"	"	"	160
		LSD - 1-2	"	"	"	"	80
		N½ LSD 7-8	"	"	"	"	40

Exhibit "155" cont'd.

LEASED FROM CALGARY AND EDMONTON CORPORATION LIMITED, Continued.

Purchased From	Date Acquired	Description	Sec.	Twp.	Rg.	Mer.	Acres
The Mayland Oil Company Ltd.	10-7-33	E½ & SW¼	17	19	2	5	480
Commonwealth Petroleum Ltd.	20-4-34	S½ LSD 7-8	9	19	2	5	40
Sterling Pacific Oil Co.Ltd.	27-3-34	All of	33	18	2	5	640
	4-4-38	S.E¼	17	18	2	5	160
		LSD 2-7	5	19	2	5	80
		W½	5	19	2	5	320
							2,320

LANDS HELD IN FEE SIMPLE

Purchased From	Date Acquired	Description	Sec.	Twp.	Rg.	Mer.	Acres
Calgary Petroleum Products	8-3-21	All	23	20	3	5	640
Catherine Spooner	8-11-34	Part NW¼	13	20	3	5	55
		E½ LSD 7-10-14	2	20	3	5	60
		W½ LSD 9	2	20	3	5	20
		LSD 1-8-15	2	20	3	5	120
							875

TOTAL OF LEASED ACREAGE: 9,070.13

In addition to the foregoing, the company holds an option, to 31st December, 1939, to lease the petroleum and natural gas contained in a further 1120 acres, the legal description of which is as follows:

East half of Section 7, Township 19, Range 2, West 5th Meridian	320	Acres
West Half of Section 19, Township 19, Range 2, West 5th Meridian	320	"
East Half of Section 25, Township 19, Range 2, West 5th Meridian	320	"
S. E. Quarter of Section 35, Township 19, Range 2, West 5th Meridian	160	"
	1,120	"

A summary of these holdings is shown hereunder:

Crown Leases	4,235.13	acres
Canadian Pacific Railway Leases	1,280.00	"
Security Assets Leases	360.00	"
C. & E. Corporation Leases	2,320.00	"
Fee Simple Leases	875.00	"
	9,070.13	"
C. & E. Corporation Option	1,120.00	"
	10,190.13	"

NATURAL GAS PURIFYING PLANT

The above-named plant which is generally known throughout the company as the "Scrubbing Plant" was designed and built by the company in the year 1925. In a broad sense the high pressure (125 pounds per square inch) scrubbing plant built by the Koppers Company of Pittsburgh at Port Alma, Ontario, in the year 1924 was used as a model, and as originally constructed it consisted of two units designed to operate in parallel but connected so as to make series operation possible, each unit being made up of three absorbers, one actifier, solution heater, sump, two pumps and one fan. In designing it, two purposes were in view - (1) as a purifying plant to treat 20,000,000 cubic feet of natural gas per day at 300 pounds gauge pressure, reducing the sulphur content from 700 to 30 or less grains per hundred cubic feet and - (2) to make the absorbers convertible to natural gasoline extraction whenever necessary or convenient.

The plant was first operated on 29th November, 1925 with a load of 5,000,000 cubic feet of gas, but a very large quantity of the sodium carbonate solution sufficient to extinguish the flare was carried into the gas outlet and on 2nd December, 1925 the plant was shut down to make several changes. Operation began again on 10th December but was still unsatisfactory, necessitating further shut downs, and it was not until 19th December that the gas was first turned into the Gas Company's lines for use in the City of Calgary. In 1927 the capacity of the plant was increased by the addition of a further unit and again in 1928 another actifier and certain other equipment was added. In 1935 ten of the old absorbers were dismantled and re-erected at the No. 2 Natural Gasoline Plant and four new absorbers each having a rated capacity of 20,000,000 cubic feet were installed. In the winter of 1938 six old absorbers were dismantled, two going to a new plant for the extraction of water from natural gas, situated at the meter station of the Distributing Company's lines. These will be re-

placed by one new absorber of 20,000,000 cubic feet capacity by the end of 1938. The most recent absorber additions are single stage scrubbers replacing the former two stage process.

The plant as a whole has a present capacity of approximately 65,000,000 cubic feet per day.

PAYROLLS

Until recent years each of the Western Producing Subsidiaries of Imperial Oil Limited maintained a separate payroll, but notwithstanding this it can be stated that as a general rule the Royalite Company maintained and manned the transportation and utility services such as shops, stores, water and power facilities, etc., carried out its own drilling, producing and pipe line operations and employed the construction crews for all producing subsidiaries of Imperial Oil Limited operating in the Turner Valley. The other subsidiaries carried on their payrolls only the crews necessary for their own drilling and producing operations, but to meet labor requirements it was not unusual for a man to be paid, for example, by Northwest Company Limited for a short space of time while actually engaged on Royalite work, and vice versa. The accounting for this was accomplished by each company charging the other for labor done on its bahalf each month. For this reason the undernoted statement of the amounts paid by the Royalite Company for salaries and wages only represents the average number of employees and the amounts actually paid by the company to them, for the period 1st January, 1929 to 31st October, 1938, and does not include the monthly Inter-Company adjustments which would be impossible to obtain accurately at this time. For what it is worth as a comparative statement, it is submitted hereunder:

Year:	Average No. Employees:	Amount:
1929	571	$1,093,702.85
1930	480	930,913.79
1931	286	484,557.39
1932	205	261,898.71
1933	261	321,694.25
1934	241	300,458.01
1935	366	449,540.96
1936	368	480,664.27
1937	562	693,273.50
1938 to October 31,	668	789,944.95
		$5,806,647.78

The average age of the employees in 1929 was 30.72 years, and at the present time the average age is 33.46 years.

EARNINGS

With the exception of its first year of operation, the Company has earned a profit in each year to date, and for the period from the commencement of operations in the year 1921, to 31st December, 1937, the aggregate amount of its profit and loss, which has been carried to Earned Surplus, totals the sum of $8,510,161.62. A statement of each year's earnings as taken from the company records and from the published annual reports, to which has been added the accumulation of its Surplus Adjustments, is included hereunder:

1921	$	
1922	88,262.24	
1923	41,137.98	
1924	78,239.12	
1925	335,754.47	
1926	535,456.59	
1927	476,901.32	
1928	670,413.71	
1929	1,159,795.16	
1930	320,552.81	
1931	257,504.09	
1932	78,236.75	
1933	431,013.85	
1934	810,958.75	
1935	738,172.41	
1936	801,356.27	
1937	1,127,372.94	$8,445,791.00
Add: Surplus Adjustments		64,370.62
		$8,510,161.62

EXHIBIT 155 cont'd

DIVIDENDS

Since its inception to date the Company has paid twenty-one dividends amounting in aggregate to a disbursement of $7,397,438.50, but in this connection it should be stated herein that the total amount should properly be increased by the amount of $16,000.00 for the reason that early in the year 1923 representatives of the Calgary Petroleums Products Limited advised the Directors that it was unable to meet its obligations and required the approximate sum of $16,000.00 for that purpose. At that time there had been issued or required to be issued eight thousand shares to the Calgary Petroleum Products as consideration for the sale of its properties and at a Meeting of the Directors of the Royalite Company, held on 21st February, 1923, it was resolved to pay a dividend of $2.00 per share on the 32,000 shares issued to Imperial Oil Limited and three which had been issued to certain of the Directors, and also to pay to the Calgary Petroluem Products the sum of $16,000.00 to meet its obligations, this being $2.00 per share on the shares which it or its shareholders held or were entitled to hold. A complete list of the dividends, together with the date of each, the rate and amount of disbursement, is shown hereunder:

No.	Date of Payment:	To Shareholders of Record at:	Amount Per Share:		Total Amount	No. Shares:
1	Feb. 24,1923	Jan.31,1923	$2.00-$25.00P.V.		$ 64,006.00	32,003
2	Nov. 25,1926	Nov. 1,1926	.25	No Par Value	100,000.00	400,000
3	June 1,1927	May 15,1927	.40	"	160,000.00	400,000
4	Dec. 15,1927	Dec. 1,1927	.35	"	140,000.00	400,000
5	May 1,1929	April27,1929	.25	"	100,000.00	400,000
6	May 15,1930	April30,1930	.50	"	250,000.00	500,000
7	Mar. 16,1931	March 5,1931	.50	"	250,000.00	500,000
8	Mar. 15,1932	March 8,1932	.50	"	250,000.00	500,000

No.	Date of Payment:	To Shareholders of Record at:	Amount Per Share:		Total Amount:	No. Shares:
9	Dec.15,1932	Nov.30, 1932	1.00	No Par Value	500,000.00	500,000
10	Sept.15,1933	Aug.31, 1933	.50	" "	270,000.00	540,000
11	Dec.20,1933	Dec. 5, 1933	.50	"	271,400.00	542,000
12	May 31,1934	May 18, 1934	.50	"	318,751.00	637,548
13	Nov.23,1934	Nov. 9,1934	.75	"	513,710.25	684,947
14	June 7,1935	May 23, 1935	.75	"	523,160.25	697,547
15	Dec. 2,1935	Nov. 15,1935	.75	"	523,160.25	697,547
16	June 1, 1936	May 15,1936	.75	"	523,160.25	697,547
17	Dec. 1, 1936	Nov. 13, 1936	.75	"	526,797.75	702,397
18	June 1, 1937	May 15, 1937	.75	"	527,311.50	703,082
19	Dec. 1, 1937	Nov. 19,1937	.75	"	527,352.75	703,137
20	June 1, 1938	May 20, 1938	.75	"	529,302.75	705,737
21	Dec. 1, 1938	Nov.18, 1938	.75	"	529,302.75	705,737
					$7,397,438.50	

EXHIBIT 156

NORTHWEST COMPANY, LIMITED

DISTRIBUTION OF GENERAL ADMINISTRATION EXPENSE AND OFFICE EXPENSE

	General Office		General Administrative	
	January 1938 - December 1938		January 1938 - December 1938	
Royalite	52.83%	59.51%	75.68%	78.17%
Northwest	41.67%	34.99%	18.07%	15.83%
Dalhousie	2.50%	2.50%	2.50%	2.50%
Foothills	2.00%	2.00%	2.50%	2.00%
Southwest	1.00%	1.00%	1.25%	1.50%
	100.00%	100.00%	100.00%	100.00%

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ROYALITE OIL COMPANY LIMITED,
CALGARY, ALBERTA

PIPE LINE DIVISION.

STATEMENT SHOWING COST OF OPERATION,
AS PER COMPANY'S BOOKS,
FOR THE NINE MONTHS ENDED 30th, SEPTEMBER, 1938.

No. of Barrels	4,575,615

Costs	
Oil Gathering Lines Expense	$ 85,016.76
Trunk Lines Expense	55,099.08
Administration and General Expense	17,820.17
Miscellaneous General Operating Charges and Credits	30.30
Plant and Equipment Retirements	652.41
Profit or Loss from Sale of Capital Assets	212.74
Vacation Expense	2,410.98
Fire Protection Expense	1,711.24
Sick Benefits	30.00
Employees' Group Insurance	262.80
Used Material Warehouse Expense	2,017.31
Shop Job Orders	1,205.98
Ditching Machine Expense	1,134.80 R
	$165,334.97
Depreciation Charges	62,616.61
	$227,951.58

Cost per Barrel

			Cents	
Costs other than Depreciation	$165,334.97	=	3.6133	per Bbl.
Depreciation	62,616.61	=	1.3684	" "
	$227,951.58	=	4.9817	" "

Note:- This statement does not include any Depreciation on Utilities or Service Units; no amount for Income Tax and no amount for Return on Investment.

Note:- "R" indicates figures in red

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606, Second Street West,
Calgary, Alberta,
17th January, 1939.

Memorandum to Mr. T. E. Burns:

Included in the statement presented to the Royal Commission by Mr. K. J. Morrison as part of Administrative Expense was an amount of $3,837.48 shown as Toronto Office charges. This is made up of the following items:

$ 90.17 -	Expenses incurred by Mr. F. B. Bimel on our behalf at the Chateau Laurier, Ottawa.
362.44 -	Travelling Expenses of Mr. and Mrs. K. H.Houston from London, Ontario to Calgary. Note: This should properly have been charged to Travelling Expenses of Employees and has been corrected.
3,384.87 -	Production and research expenses through the engagement by Royalite of experts in the Standard Oil Development Company. Note: This should have been shown as Technical Research expenses under Code A-6, and has been corrected.
$3,837.48	

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EXHIBIT "159" - Copy of the Oil Bulletin under date of the 28th of January, 1939, produced by the witness E. W. Kolb, showing wells drilling or proposed to be drilled in Southern Alberta. 4089

EXHIBIT 160 4106

ROYALITE OIL COMPANY, LIMITED

DETAILS OF PHYSICAL CAPITAL BUDGET

YEAR - 1936

PIPE LINE DIVISION

OIL GATHERING SYSTEM

Replace two miles of 2" line	4,400.00
Lay 2 miles of 2" tie-in lines	4,000.00
Change gathering system from 2" to 4" in order to be able to handle movement of products of the British American Oil Company	40,000.00
	$48,400.00

EXHIBIT "161" - Details of the Physical Capital Budget of the Royalite Oil Company, Pipe Line Department for the year 1937. (Similar to Exhibit 134.) (See page 363 of Volume 10 of Exhibits). 4106

EXHIBIT "162" - Details of the Physical Capital Budget of the Royalite Oil Company, Pipe Line Department for the year 1938. (Similar to Exhibit 134.) (See page 363 of Volume 10 of Exhibits). 4106

EXHIBIT "163" - Conditions governing connections made to the Trunk Oil lines for the purpose of delivering oil to individual refineries, set out in full on pages 4120 et seq of the Report. 4120